

ENVIRONMENTAL ASSESSMENT ANTI-TERRORISM / FORCE PROTECTION TRAVIS AFB, CALIFORNIA



U.S. AIR FORCE



**DEPARTMENT OF THE AIR FORCE
AIR MOBILITY COMMAND
TRAVIS AFB, CALIFORNIA**

SEPTEMBER 2003

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FINDING OF NO SIGNIFICANT IMPACT ANTI-TERRORISM / FORCE PROTECTION AT TRAVIS AFB

AGENCY

Department of the Air Force, Travis Air Force Base (AFB), California.

BACKGROUND

The Air Force has a requirement to improve gate security, ensure personnel safety and reduce traffic congestion, while maintaining access control at Travis AFB. The action is needed to: ensure the protection and security of Department of Defense (DoD) forces and assets against acts of terrorism; ensure the safety of security forces and motorists; improve the Base entry gate capacity and traffic flow; and, improve the aesthetic quality of entry control facilities (ECF) on Travis AFB. To meet these requirements, the Air Force is proposing to implement structural and operational modifications at ECFs on Travis AFB. The Base currently operates five gates: the Main Gate; the Hospital Gate; the North Gate; the South Gate and the Forbes Gate. Structural and operational modifications to the South Gate will be accomplished in FY05. The environmental impacts of the South Gate modifications will be evaluated in a supplemental environmental assessment to the *Environmental Assessment, West Coast Basing of C-17 Aircraft, June 2003* rather than in this document.

PROPOSED ACTION

The Air Force is proposing to construct physical improvements to each of the ECFs at Travis AFB in accordance with the recommendations identified in a traffic engineering study and Air Mobility Command (AMC) guidance. The Proposed Action would result in construction of upgrades and new security features at the gates as well as associated operational changes to Base access. The primary upgrades would include construction of a new Visitor Center at the Main Gate.

SUMMARY OF FINDINGS

Pursuant to NEPA guidance, 32 CFR 989 (Air Force Environmental Impact Analysis Process), and other applicable regulations, the Air Force completed an environmental assessment (EA) of the potential environmental consequences of implementation of the proposed AT/FP improvements to Base gates. The EA, which supports this Finding of No Significant Impact (FONSI), evaluated the No Action Alternative, Proposed Action, and an Alternative Action.

Land Use. The Proposed Action will not result in any conflicts with existing land use.

Air Quality. Construction activities will result in the generation of air pollutant emissions during the estimated four-year construction period. The greatest increase in emissions at Travis AFB will be from particulate matter (PM₁₀) (3.14 tons per year [tpy]) equating to 0.004 percent of the PM₁₀ emissions within the air quality control region (AQCR). The emissions will be temporary and will cease after completion of the activity. Emissions fall below the 10 percent level that will be considered regionally significant by the USEPA if the region were nonattainment for any of the criteria pollutants as stated in 40 CFR 51, Subpart W, Section 852. However, the area is in attainment. No change to air quality will be expected during operation of the improved gates. Therefore, the air emission impacts from the construction activities associated with the Proposed Action will not be considered significant.

Noise. Construction noise at the gates will be temporary, occurring only during daytime, and will cease when the project is completed. Sleep interference and noise-induced hearing loss will not be expected. Noise related to the construction projects may have a short-term impact at nearby buildings. Outdoor noise from construction activity at occupied buildings 50 feet from the noise source could be as high as 75 to 89 dB. The corresponding interior noise levels during construction activity will be reduced from by approximately 18 to 27 dB due to the noise level reduction properties of the building's construction materials. This reduced level of noise could annoy less than 15 percent of nearby persons and cause disruption of speech during the noise event. Operational noise at the improved gates will be similar to existing conditions. Impacts to the noise environment will not be considered significant.

Biological Resources. No endangered, threatened, or special status species are documented in the construction areas. The North Gate Duck Pond area, a riparian corridor associated with Union Creek, will be avoided during construction at the North Gate. With incorporation of best management practices, impacts to biological resources will not be expected.

Cultural Resources. The Proposed Action will not result in impacts to archaeological resources on Travis AFB. Design and construction of improvements to the Base gates will be conducted in accordance with the Travis AFB Cultural Resources Management Plan. Impacts to historic resources will be avoided. No Native American concerns are known on Travis AFB.

Infrastructure and Utilities. There will be no change in the number of personnel authorizations at Travis AFB as a result of the proposed activities. Therefore, there will be no long-term change in water consumption or wastewater generation from the current levels. The amount of water that will be applied for dust suppression will be minor when compared to current water system use. It is anticipated that no substantial change in the amount of impervious cover will be added to the Base a result of the proposed gate improvements. The storm water from the additional impervious cover will be minimal when compared to the current storm water runoff at the Base. Construction and demolition debris that will be generated by the Proposed Action equates to less than 0.005 percent of the total remaining capacity of the Potrero Hills landfill. Solid waste generated by personnel will not change as a result of the Proposed Action. Impacts from solid waste disposal will not be considered significant. The Proposed Action will not result in any change in the numbers of vehicles that access the Base via each of the gates. Traffic congestion will be expected to decrease as a result of the Proposed Action.

Environmental Management. The Proposed Action will be accomplished in accordance with requirements contained in the Pollution Prevention Plan for Travis AFB. The action will not generate quantities of pollution prevention elements over and above established baseline levels. The action will not be expected to generate asbestos-containing materials (ACM) or lead-based paint (LBP) because the only demolition planned is the existing visitor control building which was constructed following the ban on use of these materials. No worker, resident, or visitor exposure to ACM or LBP will be expected. The action will not generate quantities of these materials beyond the capability of current management procedures. Facilities design and construction activities will be coordinated with the Base Environmental Flight and Bioenvironmental Engineering Office to ensure that construction will avoid interference with any ongoing Environmental Restoration Program investigation and remediation work and will not worsen the condition of this site.

Hazardous Materials and Wastes. The contractor will comply with regulatory guidance for the use and disposal of hazardous materials and wastes during construction activities. The volumes of hazardous materials purchased for, and hazardous wastes generated by, operation of the gates will be negligible. It is not anticipated any new hazardous materials will be needed. The existing hazardous materials handling and hazardous waste disposal processes and procedures will accommodate the activities associated with gate operation.

NO ACTION ALTERNATIVE

Under the No Action Alternative, Travis AFB will continue to operate its bases with existing force protection measures that are inadequate and do not meet requirements. The No Action Alternative will result in no construction activities or operational changes to any of the existing gates on Travis AFB. No significant impacts occur from the baseline activities.

ALTERNATIVE ACTION

As an alternative to the Proposed Action, the Air Force evaluated the construction of an expanded parking lot for the Visitor Center at the Main Gate (instead of a new Visitor Center at the Main Gate). The Alternative Action will result in the same environmental impacts as the Proposed Action.

ENVIRONMENTAL JUSTICE

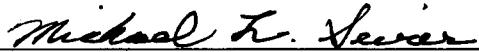
Based on analysis conducted for this EA, it is determined that activities associated with the Proposed Action, Alternative Action, and No Action Alternative will not impose adverse environmental effects on adjacent populations. Therefore, no disproportionately high and adverse effects will occur to minority and low-income populations.

PUBLIC REVIEW

A Notice of Availability for the Draft EA for this action was published in the *Daily Republic* (Fairfield, CA) on August 26 and 27, 2003, and in *The Reporter* (Vacaville, CA) on August 31, September 1, and September 2, 2003. One comment letter was received from the City of Fairfield, Department of Planning and Development. No comments or concerns were raised.

DECISION

Based on my review of the facts and analyses contained in the EA, I conclude that implementation of either the Proposed Action or Alternative Action will not have a significant impact either by itself or when considering cumulative impacts. Accordingly, requirements of the NEPA, regulations promulgated by the Council on Environmental Quality, and 32 CFR 989 are fulfilled and an environmental impact statement is not required.



MICHAEL L. SEVIER, Colonel, USAF
Vice Commander
60th Air Mobility Wing
Travis Air Force Base, California



Date

ENVIRONMENTAL ASSESSMENT

ANTI-TERRORISM / FORCE PROTECTION

TRAVIS AIR FORCE BASE, CALIFORNIA

DEPARTMENT OF THE AIR FORCE

AIR MOBILITY COMMAND

TRAVIS AIR FORCE BASE, CALIFORNIA

SEPTEMBER 2003

COVER SHEET

ENVIRONMENTAL ASSESSMENT

ANTI-TERRORISM / FORCE PROTECTION TRAVIS AIR FORCE BASE, CALIFORNIA

Responsible Agency: Department of the Air Force, Travis Air Force Base (AFB), California.

Proposed Action: Construct Anti-Terrorism/Force Protection facilities at the Base entrance/exit gates.

Contact Information: Written comments and inquiries regarding this document should be directed to: Mr. Rudy Pontemayor, 60 CES/CEV, 580 Hickam Avenue, Suite B246, Travis AFB, CA 94535-2176, Phone: (707) 424-3586, Fax: (253) 424-5105, email: rodolfo.pontemayor@travis.af.mil.

Report Designation: Environmental Assessment

Abstract: The Air Force has a requirement to improve gate security, ensure personnel safety and reduce traffic congestion, while maintaining access control at Travis AFB. The action is needed to: ensure the protection and security of Department of Defense (DoD) forces and assets against acts of terrorism; ensure the safety of security forces and motorists; improve the Base entry gate capacity and traffic flow; and, improve the aesthetic quality of entry control facilities (ECF) on Travis AFB. To meet these requirements, the Air Force is proposing to implement structural and operational modifications at four ECFs on Travis AFB: the Main Gate; the Hospital Gate; the North Gate; and, the Forbes Gate. As an Alternative Action, the Air Force is considering expansion of the existing parking lot at the Visitor Center (Main Gate). Under the No Action Alternative, no improvements to gate security or other force protection measures would be accomplished. Resources considered in the impact analysis are: land use; air quality; noise; biological resources; cultural resources; infrastructure and utilities; environmental management; hazardous materials and wastes; and environmental justice. No significant impacts would result from implementation of the Proposed or Alternative Actions, or the No Action Alternative.

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ACRONYMS AND ABBREVIATIONS

$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter
AASHTO	American Association of State Highway and Transportation Officials
ACG	Architectural Compatibility Guidance
ACM	Asbestos-containing materials
AFB	Air Force Base
AFI	Air Force Instruction
AHPA	Archeological and Historic Preservation Act
AICUZ	Air Installation Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
ALUC	Airport Land Use Commission
AMC	Air Mobility Command
AMW	Air Mobility Wing
ANSI	American National Standards Institute
APE	Area of Potential Effect
APZ	Accident potential zone
AQCR	Air Quality Control Region
ARPA	Archeological Resources Protection Act
AT/FP	Anti-Terrorism/Force Protection
BASH	Bird-aircraft strike hazard
CAA	Clean Air Act
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CES/CEV	Civil Engineering Squadron/Environmental Flight
CFR	Code of Federal Regulations
CNEL	Community noise equivalency level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO ₂	Carbon dioxide
CRMP	Cultural Resources Management Plan
CY	Calendar year
CZ	Clear zone
dB	Decibel
dBA	A-weighted decibel
DNL	Day –Night average sound Level
DoD	Department of Defense
EA	Environmental Assessment
ECF	Entry Control Facility
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
ERA	Environmental Restoration Act
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESU	Evolutionary significant unit
FAA	Federal Aviation Administration

FHWA	Federal Highway Administration
FICUN	Federal Interagency Committee on Urban Noise
FONSI	Finding of No Significant Impact
FPCON	Force Protection Conditions
FY	Fiscal year
HQ	Headquarters
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
lb	pound(s)
LBP	Lead-based paint
MAP	Management action plan
N ₂ O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NAS	National Academy of Science
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLR	Noise Level Reduction
NMFS	National Marine Fisheries Service
NO	Nitric Oxide
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NPL	National Priority List
NRHP	National Register of Historic Places
NRMU	Natural resource management unit
O ₃	Ozone
OU	Operable unit
Pb	Lead
PL	Public law
PM ₁₀	Particulate Matter
POL	Petroleum Oil and Lubricant
POV	privately-owned vehicle(s)
ppm	Parts per million
QAE	Quality Assurance Evaluator
ROI	Region of Influence
SFBAAB	San Francisco Bay Area Air Basin
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
SO _x	Sulfur Oxides
SWPPP	Storm Water Pollution Protection Plan
tpy	tons per year
TSP	Total Suspended Particulates
USAF	United States Air Force
USC	United States Code

USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Forest and Wildlife Service
VAS	Vehicle arrest system
VOC	Volatile Organic Compound

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CHAPTER 1

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

This chapter has six sections: introduction; need for the action; objectives of the action; scope of the environmental review; statement of the regulatory requirements; and the organization of the document.

1.1 INTRODUCTION

The Air Force has a requirement to improve gate security, ensure personnel safety and reduce traffic congestion, while maintaining access control at Travis AFB. To meet these requirements, the Air Force is proposing to implement structural and operational modifications along the perimeter and at four entry control facilities (ECFs) on Travis AFB.

Figure 1-1 shows the location of Travis AFB. It is estimated that activities associated with the Proposed Action would begin in early 2004.

1.2 NEED FOR THE ACTION

The action is needed to:

- Ensure the protection and security of Department of Defense (DoD) forces and assets against acts of terrorism;
- Ensure the safety of security forces and motorists;
- Improve the Base entry gate capacity and traffic flow; and,
- Improve the aesthetic quality of the Base perimeter and ECFs on the Base.

1.3 OBJECTIVE OF THE ACTION

The objective of the action is to improve gate security, ensure personnel safety and reduce traffic congestion, while maintaining access control at Travis AFB. The Air Force is proposing to construct physical improvements to process visitors and commercial vehicles, as well as implement operational modifications at four Travis AFB ECFs.

1.4 SCOPE OF THE ENVIRONMENTAL REVIEW

The *National Environmental Policy Act* (NEPA) of 1969, as amended, requires federal agencies to consider environmental consequences in the decision-making process. The President's Council on Environmental Quality (CEQ) issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required environmental analysis. The Air Force Environmental Impact Analysis Process (EIAP) is accomplished through adherence to the procedures set forth in CEQ regulations (40 Code of Federal Regulations [CFR] Sections 1500-1508) and 32 CFR 989 (*Air Force Environmental Impact Analysis Process*), 15 Jul 99, and amended 28 Mar 01. These federal regulations establish both the

administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action. The CEQ regulations require that an environmental assessment (EA):

- Briefly provide evidence and analysis to determine whether the Proposed Action might have significant effects that would require preparation of an environmental impact statement (EIS). If analysis determines that the environmental effects would not be significant, a finding of no significant impact (FONSI) will be prepared;
- Facilitate the preparation of an EIS, when required; or
- Aid an agency's compliance with NEPA when no environmental impact statement is necessary.

This EA assesses the construction and operational aspects of the proposed anti-terrorism/force protection (AT/FP) measures at Travis AFB. This document identifies, describes, and evaluates the potential environmental impacts that may result from implementation of the Proposed Action or an Alternative Action as well as possible cumulative impacts from other reasonably foreseeable actions planned for the Base. The EA also identifies required environmental permits relevant to the Proposed Action and Alternative Action. As appropriate, the affected environment and environmental consequences of the Proposed Action, Alternative Action, and No Action Alternative may be described in terms of site-specific descriptions or regional overview. Finally, this EA identifies mitigation measures to prevent or minimize environmental impacts, if required.

This EA does not assess the upgrades that will occur at the Travis AFB South Gate. That action is a fiscal year 2005 (FY05) element of the action to base and operate C-17 aircraft at the Base and was evaluated in a document entitled *Environmental Assessment, West Coast Basing of C-17 Aircraft, June 2003*. The FONSI for the action was signed July 21, 2003.

The following biophysical resources are assessed in the EA: land use; noise; air quality; biological resources; cultural resources; solid waste management; transportation systems; site contamination; and hazardous materials and wastes. The following resources are not evaluated in this EA (followed by a rationale for not evaluating each subject):

Geologic Resources. The construction projects associated with the action are located in portions of the Base that have been disturbed and altered by previous activities. Construction at the gates would not result in any substantial changes to physiographic features. No changes in site elevation would be required and alteration of ground surfaces would be minimal. Earthwork would be planned and conducted in a manner to minimize duration of exposure of unprotected soils. Work would be conducted in accordance with best management practices for erosion control. Landscaping of exposed surfaces following completion of construction would minimize the potential for erosion. For these reasons, no geologic, physiographic, or soil impacts would be anticipated from the proposed activities and soil resources are not assessed in this EA.

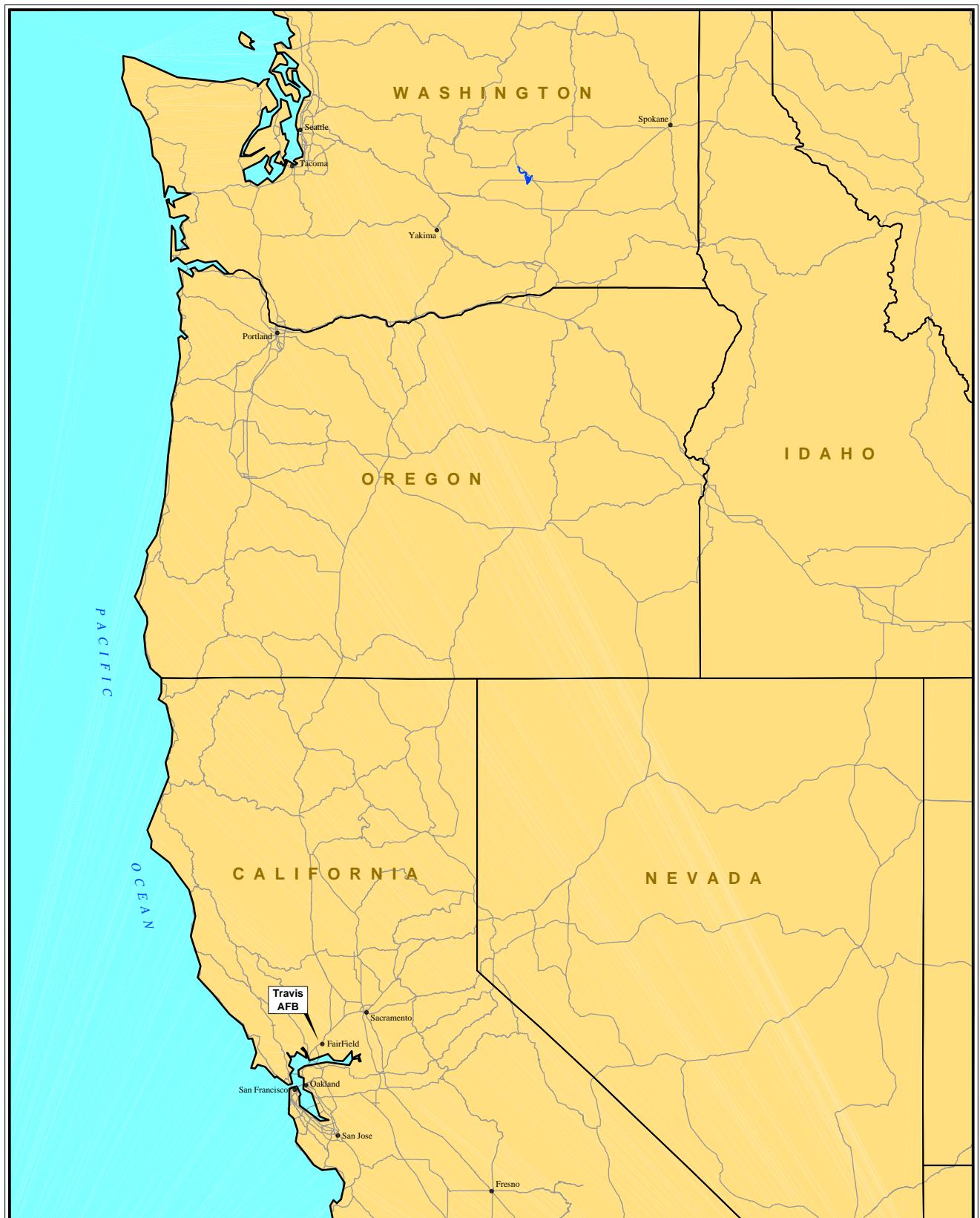


Figure 1-1

Location Map

Travis AFB

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Water Resources. A segment of Union Creek and the North Gate Duck Pond are located approximately 250 and 500 feet from the Hospital and North Gates, respectively. The western branch of Union Creek and a drainage which feeds into Union Creek are located approximately 125 and 500 feet from the Forbes and Main Gates, respectively. Each of these water bodies would be avoided during construction at these gates. The water table below the Base varies from 2 to 7 feet below ground surface, and none of the construction activity would occur at this depth. Standard erosion control measures to prevent storm water pollution would be incorporated into facility construction and design to minimize soil disturbance, and prevent erosion and sedimentation, at the work site. Measures to prevent discharge of contaminants into surface waters would be followed during construction. For these reasons, no surface water, groundwater impacts would be anticipated; therefore, these resources are not assessed in this EA (floodplains are evaluated as part of biological resources).

Infrastructure and Utilities. There would be no change in the number of personnel authorizations at Travis AFB as a result of the proposed activities. Therefore, there would be no long-term change in water consumption or wastewater generation from the current levels. It is expected that water would be applied for dust suppression during construction activities. However, the amount of area that would be affected by construction would be limited to the immediate gate area and water application would be for an approximate 48-month period (maximum). The amount of water that would be applied would be minor when compared to current water system use and water application would not be long-term. It is anticipated that no substantial change in the amount of impervious cover would be added to the Base a result of the proposed gate improvements. The storm water from the additional impervious cover would be minimal when compared to the current storm water runoff at the Base. For these reasons, water, wastewater, or storm water system impacts would not be anticipated. These subjects, typically included in infrastructure and utilities, are not assessed in this EA.

Environmental Management. The Proposed or Alternative Action would be accomplished in accordance with requirements contained in the Pollution Prevention Plan for Travis AFB. The action would be conducted in compliance with regulatory mandates in: the Pollution Prevention Act of 1990; Executive Order (EO) 12856 Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements; EO 12873 Federal Acquisition, Recycling, and Waste Prevention; EO 12902 Energy Efficiency and Water Conservation at Federal Facilities; and, AFI 32-7080, dated 12 May 1994. The action would not generate quantities of pollution prevention elements over and above established baseline levels. The action would not be expected to generate asbestos-containing materials (ACM) or lead-based paint (LBP) because the only demolition planned is the existing visitor control building which was constructed following the ban on use of these materials. No worker, resident, or visitor exposure to ACM or LBP would be expected. The action would not generate quantities of these materials beyond the capability of current management procedures. For these reasons, pollution prevention, ACM or LBP are not evaluated in this EA. The environmental management analysis for this EA is limited to Environmental Restoration Program (ERP) activities.

Safety and Health. The proposed improvements to the gates would not result in any increase in safety or occupational health risks. In the event of an explosion, Base personnel would follow the procedures of the applicable Emergency Response Plan/Disaster Preparedness Plan, which would take precedence. For these reasons, safety and health are not assessed in this EA.

Socioeconomic Resources. Although the Proposed Action could result in minor increases in security forces personnel during operation of the gates, there would be no change in the number of personnel authorizations at Travis AFB as a result of the proposed activities. Thus, no long-term changes would be anticipated to area population, housing requirements, school enrollment, or economic factors (*i.e.*, sales volume, income, or employment). It is not anticipated that construction workers would relocate to the Sacramento area as a result of the proposed activities. Thus, there would be no short-term impacts to area population, housing requirements, or school enrollment. No change to economic factors from the proposed construction activities or long-term operation would be expected. For these reasons, socioeconomic resources are not assessed in this EA.

Aesthetics. Modifications to the gates would be designed in accordance with AMC Entry Control Facilities Design Guidelines and the Travis AFB Architectural Compatibility Guide that ensures aesthetic compatibility with objectives of the Base General Plan. For these reasons, aesthetics is not assessed in this EA.

Environmental Justice. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued by the President on February 11, 1994. The EO requires each federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Based on the analysis conducted for this EA, it is determined that activities associated with the Proposed Action, Alternative Action, and No Action Alternative would not impose adverse environmental effects on adjacent populations. Therefore, no disproportionately high and adverse effects would occur to minority and low-income populations.

Baseline conditions to be used for environmental evaluation in the EA are assumed to be FY02. However, if FY02 data are not available, the most recent information will be used. It is estimated that the Proposed Action would begin in FY03 (calendar year 2004) and be completed in FY06 (calendar year 2007), for a total of 4 years.

1.5 APPLICABLE REGULATORY REQUIREMENTS

Numerous construction projects would be accomplished under either the Proposed Action or Alternative Action. The construction contractor for either action would prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) to ensure compliance with Clean Water Act requirements to ensure water quality is not degraded.

1.6 ORGANIZATION OF THE DOCUMENT

This EA is organized into seven chapters and two appendices.

- Chapter 1* Contains an introduction; a statement of the need for the action; objective of the action; scope of the environmental review; presentation of the applicable regulatory requirements; and the organization of the EA.
- Chapter 2* Identifies the selection criteria for alternatives; describes the alternatives considered but eliminated from further consideration; details the proposed alternatives; presents information on past and reasonably foreseeable future actions; identifies the preferred alternative; and summarizes the environmental impacts for all alternatives.
- Chapter 3* Contains a general description of the biophysical resources and baseline conditions that potentially could be affected by the Proposed Action, Alternative Action, or No Action Alternative.
- Chapter 4* Describes the environmental consequences of the Proposed and Alternative Action and the No Action Alternative, identifies potential cumulative impacts and mitigation for impacts determined to be significant.
- Chapter 5* Lists preparers of this document.
- Chapter 6* Lists the persons and agencies consulted during preparation of this EA.
- Chapter 7* Lists the sources of the information used in preparation of this EA.
- Appendix A* Air Force Form 813
- Appendix B* Interagency and Intergovernmental Correspondence for Environmental Planning

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CHAPTER 2

DESCRIPTION OF THE ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter has eight sections: introduction; selection criteria used to develop the alternatives; current base access conditions; alternatives considered; description of the proposed alternatives; descriptions of other actions announced for Travis AFB; identification of the preferred alternative; and a comparison of the environmental effects of all alternatives.

2.1 INTRODUCTION

The Air Mobility Command has responsibility over airlift capabilities in the United States. The AMC has determined that improved force protection and security is needed in conjunction with improved gate capacity and traffic flow at each of its installations. It is assumed that force protection conditions (FPCON) Bravo, or higher, is the baseline for sustained operations. Assuming that the primary threat is a vehicle-borne bomb, the first line of defense is the perimeter of the Base and ECFs.

In 2002, a traffic engineering study of gate security, safety and capacity was conducted for the Base by the Military Traffic Management Command Transportation Engineering Agency and Gannett Fleming (USAF 2002). The study characterized existing conditions with respect to gate usage, hours of operations, number of lanes, traffic data and manpower. The study identified short- and long-term recommendations to improve force protection and traffic flow at Travis AFB. The key design guidance for the proposed improvements was derived from:

- Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices;
- American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets;
- AASHTO Roadside Design Guide;
- AMC Force Protection Sustainment Team Report (March 2002);
- AMC Entry Control Facilities Design Guidelines (February 2002); and,
- Travis AFB Architectural Compatibility Guide (ACG).

The 2002 traffic engineering study provided:

- Development plans for each of the gates;
- Recommendations for signing, lighting, speed control; and,
- Other considerations such as plaza, canopy or tandem processing islands, vehicle arrest systems, architectural considerations, and gate security systems.

2.2 SELECTION CRITERIA FOR ALTERNATIVES

The Air Force identified selection criteria for alternatives during the initial study phase of the project. The following summarizes the Air Force selection criteria for improving force protection measures on Travis AFB:

- Any alternative must meet the requirements identified in FHWA, AASHTO, AMC and Travis AFB design guidance (Subchapter 2.1). Sufficient area and facilities for proper vehicle inspection and denial of access are required.
- Force protection improvements must result in improved gate capacity and traffic flows, particularly for processing of visitor and commercial vehicles during morning peak hours.
- Force protection improvements must be designed in consideration of any ongoing or planned transportation projects that may be associated with any of the entry points.

2.3 CURRENT BASE ACCESS CONDITIONS

Access to Travis AFB is currently accomplished via five gates on the Base. Access to the Base is managed by vehicle type: privately-owned vehicles (POV) which are authorized access by decal or pass (including visitor pass); buses (public transit or school buses); and, commercial vehicles (delivery trucks, vendors, and contractor vehicles). Security requirements include ID checks of all vehicles and inspection of commercial vehicles, depending on the level of threat conditions. An operational summary of the four gates being assessed in this EA is provided in Table 2-1. The locations of the gates are shown on Figure 2-1.

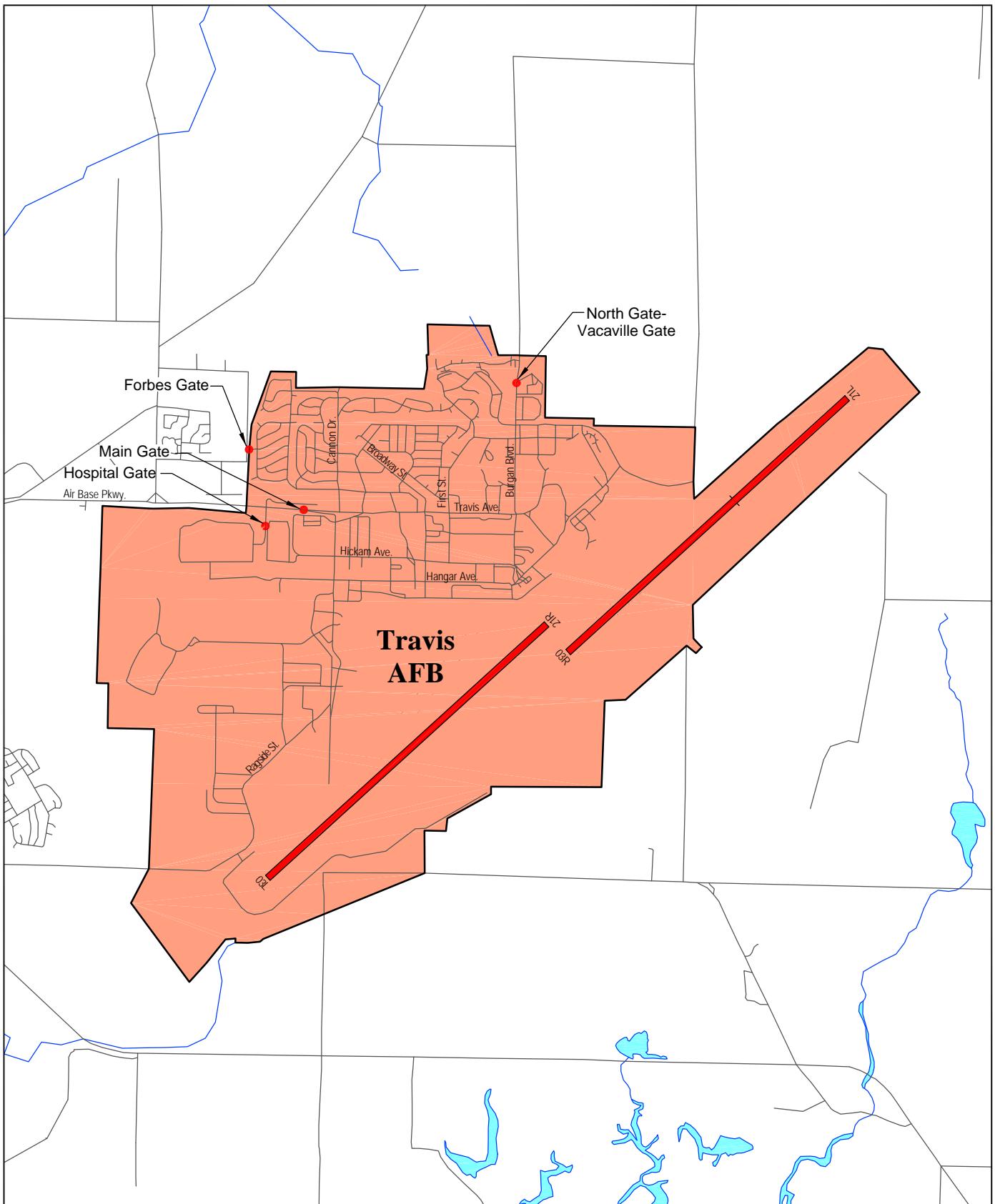
Table 2-1 Existing Gates on Travis AFB

Gate	Location	Operation	Status	Approx. No. of Vehicles ^a
Main	Air Base Parkway east of I-80	24 hrs/day	Open to POV (decals, passes and new visitors)	1,060
North	North end of Burgan Boulevard	0600 to 2200 daily	POV (decals and passes)	795
Hospital	Parker Road south of Air Base Parkway	0600 to 1800 weekdays	POV (decals and passes)	1,365
South	Ragsdale Road at southwest corner of Base	0600 to 1800 daily	Commercial vehicles (vendors, contractor, construction)	47
Forbes	East side of Base Housing area on Forbes Street and De Ronde Drive	0630 to 0900 and 1145 to 1630 weekdays	POV, school buses, school children and their parents	225

POV privately-owned vehicles

^a Reflects morning inbound vehicles as recorded by 60th Security Forces during Alpha conditions

Note: South Gate data provided for informational purposes because the initiatives at this gate are not included in this EA (see Subchapter 1.4).

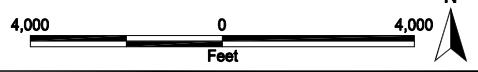


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Travis Air Force Base

LEGEND

- Air Force Installation
- Gate



Location of Gates on Travis AFB

Figure 2-1

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Gates on Travis AFB experience inadequate queuing areas and parking capacity, and do not have sufficient space for vehicle (POV and commercial) inspection. Denial of access to certain vehicles often results in traffic delays due to lack of turnaround area at the gates. Gates also have inadequate gatehouses, lighting and speed control upon approach. These conditions often result in congestion at nearby intersections during ID checks and inspection.

2.4 ALTERNATIVES CONSIDERED, INCLUDING THE NO ACTION ALTERNATIVE

Using the criteria in Subchapter 2.2, the Air Force developed three potential alternatives, including the No Action Alternative, for providing force protection improvements at Travis AFB. The following sections summarize the alternatives consideration process. None of the alternatives considered were eliminated from consideration.

2.4.1 Improve Base Gates to Meet AT/FP Requirements (Proposed Action)

The Air Force is proposing to implement physical improvements to each of the ECFs at Travis AFB in accordance with the recommendations identified the 2002 Traffic Engineering Study as well as FHWA, AASHTO, AMC and Travis AFB requirements described in Subchapter 2.1. The Proposed Action would result in construction of upgrades and new security features at the gates as well as operational changes to Base access. The Proposed Action would result in improvements to the Main, North, Hospital, and Forbes Gates.

2.4.2 Expand Parking at Main Gate (Alternative Action)

As an Alternative Action, the Air Force is also considering expansion of the existing parking lot near the visitor center at the Main Gate, without construction of a new visitor center.

2.4.3 No Action Alternative

The Air Force EIAP (32 CFR 989.8(d)) states: "...except in those rare instances where excused by law, the Air Force must always consider and assess the environmental impacts of the "no action" alternative. Under the No Action Alternative, Travis AFB would continue to operate its bases with existing force protection measures that are inadequate and do not meet FHWA, AASHTO, AMC and Travis AFB requirements described in Subchapter 2.1. The No Action Alternative would result in no construction activities or operational changes to any of the existing gates on Travis AFB.

2.5 DESCRIPTION OF PROPOSED ALTERNATIVES

2.5.1 Proposed Action

Based on the process described in Subchapters 2.1 though 2.3, the Air Force would construct and operate improved AT/FP measures identified in the 2002 Traffic Engineering Study for Travis AFB. Construction activities for the Proposed Action would begin in FY03 (calendar year 2004) and be complete in FY06 (calendar year 2007).

Gate operations proposed for Travis AFB would occur as follows. Figures 2-2, 2-3, and 2-4, respectively, show the proposed layout for the Main, North, and Hospital gates. The improvements at the Forbes Gate are minor and a layout design is not part of that gate project.

Main Gate. A new Visitor Center and expanded parking lot would be constructed at the Main Gate. One additional inbound lane would be constructed. The gate would operate with three inbound lanes with tandem (2) ID checker positions in the short term. Three inbound lanes with tandem ID checker positions would be present in the long term. An off-street POV inspection area would be constructed with a two-bay canopy. During Force Protection Conditions (FPCON) Bravo+ conditions, vehicles entering this gate would be checked for decals and passes. The gate would continue to operate 24 hours per day.

North Gate. The North Gate would operate with two inbound lanes, a 2-bay POV inspection canopy for tandem processing, and a truck turnaround area.

Hospital Gate. This gate would operate with three inbound lanes during peak hours, a POV inspection area, and turnaround capability.

Forbes Gate. The Forbes Gate would operate with improved barricade and signage, and possible reduced hours of operation due to limited use.

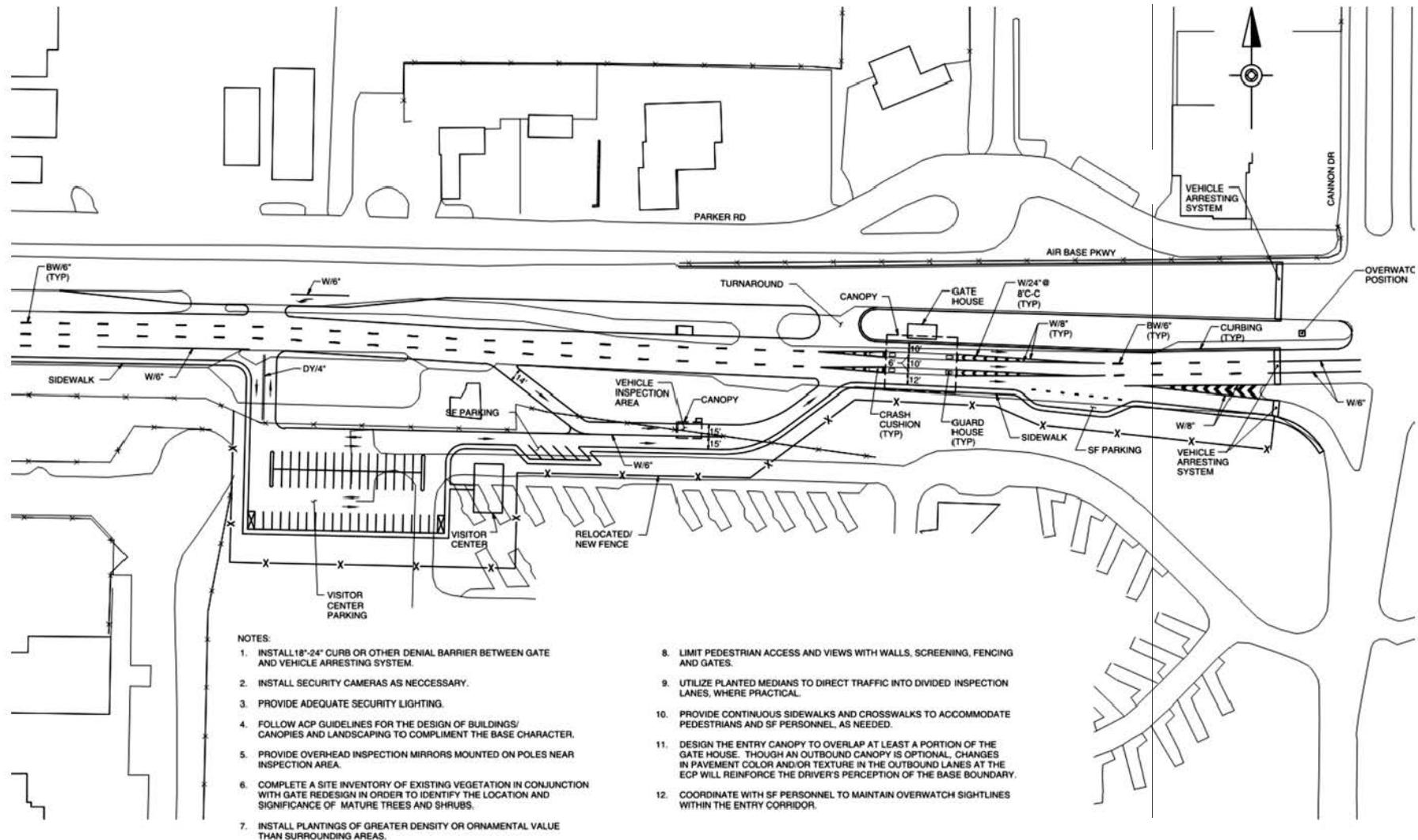
Other Improvements. To further improve traffic conditions during morning peak period, the Air Force would make improvements to directional signage, lighting, and speed control features at the four gates. Architectural considerations would be included in design. A vehicle arrest system (VAS) to prevent unauthorized access to the installation would be installed at the Main, Hospital, and North Gates.

2.5.1.1 Main Gate Improvements

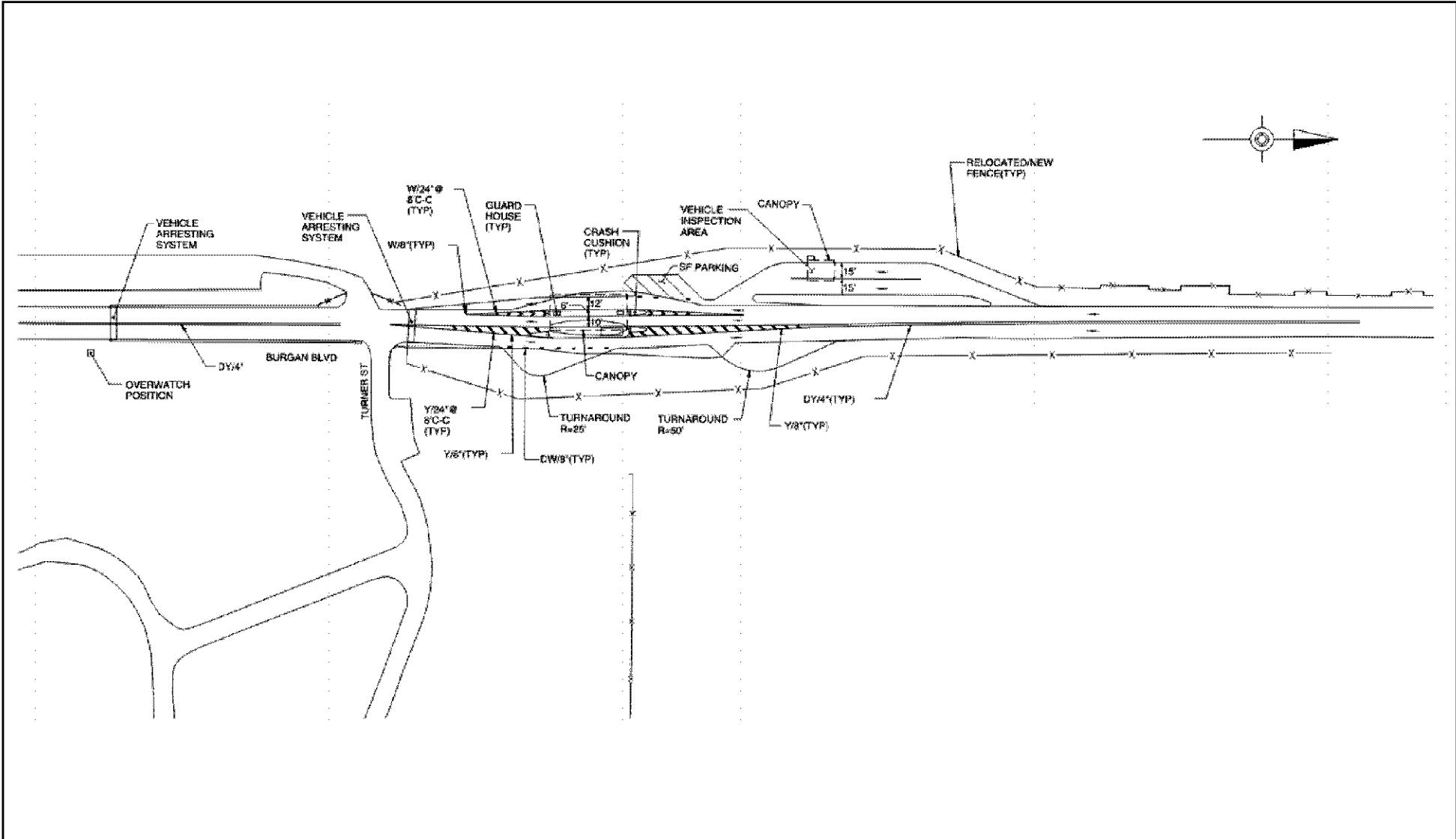
The short term recommendations for the Main Gate consist of continued coordination with the main gate pavement resurfacing project (accommodate ID checks, third inbound lane, relocated pull-off utility lane and VAS), and safety enhancements that include replacing traffic delineators, improving lighting, installing additional rumble strips and speed reduction signs, speed enforcement and repair of flashers on drop arms.

Over the long term, the Air Force would continue to use the Main Gate as the main entrance to Travis AFB. A new visitor center and larger parking lot would be constructed. The gatehouse would be relocated and enlarged. A visitor/random POV inspection area with 2-bay canopy would be constructed. Turnaround capability would be provided from the visitor center. A third inbound processing lane would be constructed. A canopy, islands for checkers, crash protection devices, cameras, improved lighting, and other standard infrastructure would be installed. The auxiliary pull-off would be relocated and a continuous pedestrian sidewalk would be constructed through the ECF. An overwatch, VAS and lateral denial barrier would be constructed. The Proposed Action would include removal of two parking spaces and limited roadway in the family camp area south of the Main Gate.

Figure 2-2 Main Gate Layout, Travis AFB



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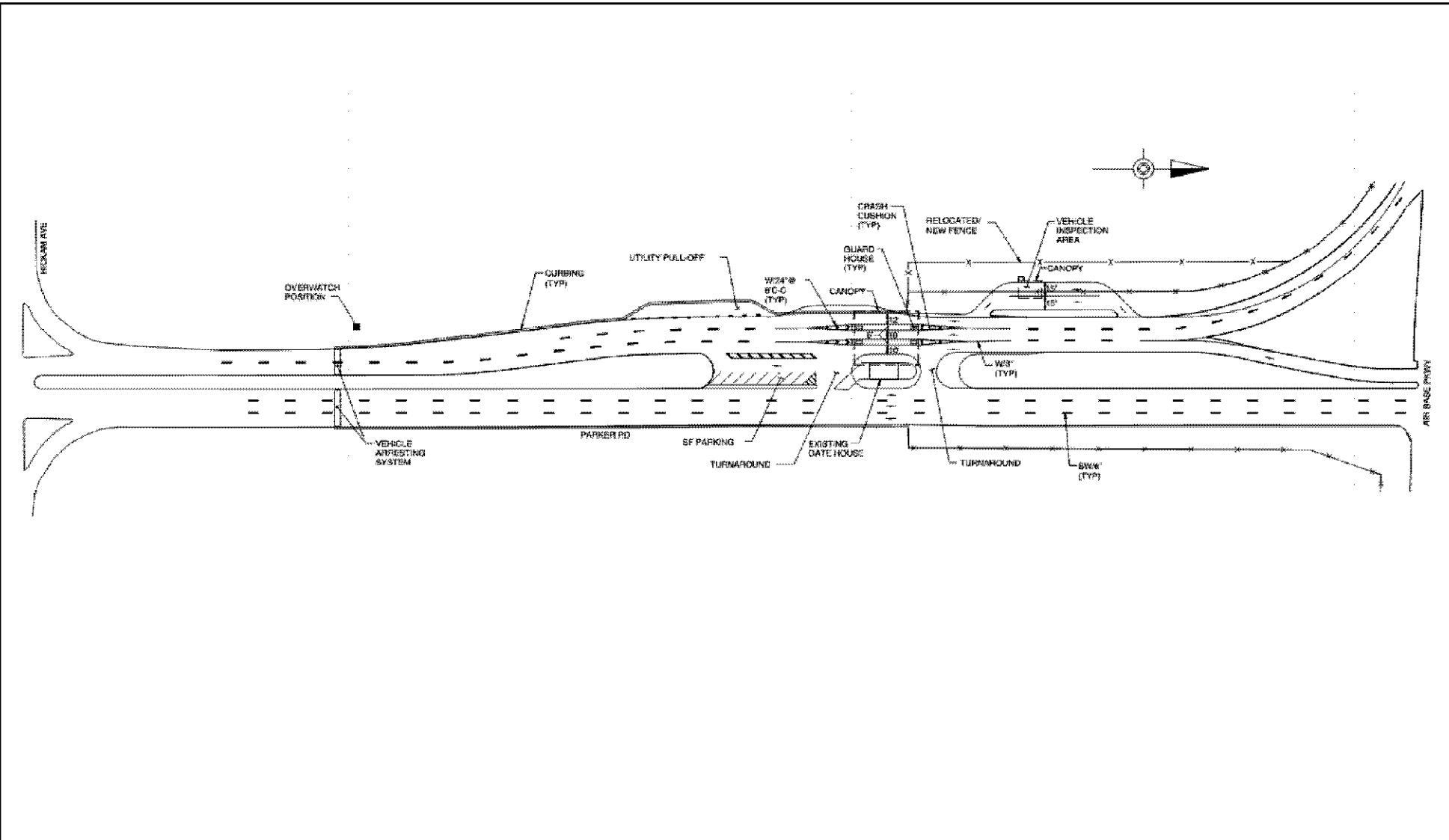


Travis Air Force Base

North Gate Layout
Travis AFB

Figure 2-3

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Travis Air Force Base

**Hospital Gate Layout
Travis AFB**

Figure 2-4

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2.5.1.2 North Gate Improvements

The short term recommendations for the North Gate would include the following safety improvements: relocating signs on the island; reversing the flow in the nearby park parking area; and installing retro-reflective sheeting on the pylons in front of the gatehouse. Signs on the swing gates at the gatehouse would be removed or replaced. A Type II barricade, directional signs and speed control signs would be installed at the southbound approach to the gate.

Over the long term, the Air Force would: construct a POV inspection lane with 2-bay canopy north of the gatehouse; construct a second inbound ID check lane with adequate transition, storage and protective island for tandem processing; construct a larger gatehouse and canopy with tandem processing capability; install VAS and overwatch positions; construct a denial barrier and truck turnaround area; and, construct continuous sidewalk through the ECF.

2.5.1.3 Hospital Gate Improvements

The short term recommendations for the Hospital Gate have already been completed and included the following safety improvements: installation of retro-reflective sheeting; installing Type III barricade sings; and, extending the gatehouse island to the innermost inbound travel lane. Pavements on the right turn lane from Air Base Parkway would be widened to accommodate two travel lanes and an increased queuing area. A third inbound processing lane would be open during peak periods. Signage would be improved and jersey barriers would be relocated.

Long term improvements at the Hospital Gate would include: providing a two-lane right turn capability from Air Base Parkway; construction of a POV inspection with a 2-bay canopy; utilization of three inbound lanes for processing vehicles during peak hours; installation of a canopy, ID check islands, crash protection devices, cameras and other standard infrastructure; reconfiguration of the median area to provide turnaround capability; utilization of the parking area for Security Forces parking and auxiliary pull-off; and, installation of VAS, overwatch, and denial barrier.

2.5.1.4 Forbes Gate Improvements

The short-term recommendations for the Forbes Gate are limited to installation of standard Type III barricade and associated signage. Because of its limited use, hours of operation may be reduced. No long-term recommendations were made for the Forbes Gate.

2.5.1.5 Construction Projects

The Air Force would accomplish separate construction projects to support the AT/FP project at Travis AFB. Construction would occur at three gates (improvements to the Forbes Gate is considered minor in nature). Table 2-2 lists the size of the project in square feet as well as the estimated project construction duration for each of the affected gates. It is anticipated that construction at each gate would occur sequentially. Based on funding, it is also possible

that construction activities could occur simultaneously at all four gates. Construction activities would be scheduled to enable continued and modified operation and access at the gate during groundwork.

Table 2-2 Construction Project Information, Proposed Action

Project	Size (sq ft)	Duration
Main Gate		
Construct New Visitor Center with enlarged parking lot and turnaround area	62,320	6 months
Relocate/enlarge gatehouse; visitor/random POV inspection area with 2-bay canopy; third inbound processing lane; canopy, islands for checkers, crash protection devices, cameras, improved lighting, and infrastructure; relocate auxiliary pull-off; continuous pedestrian sidewalk; overwatch, VAS and lateral denial barrier.	51,886	6 months
North Gate		
POV inspection lane with 2-bay canopy; second inbound ID check lane with transition, storage and protective island for tandem processing; gatehouse and canopy with tandem processing capability; VAS and overwatch positions; denial barrier and truck turnaround area; continuous sidewalks and removal of brick wall	91,944	12 months
Hospital Gate		
Right turn lane improvements from Air Base Parkway; POV inspection with a 2-bay canopy; installation of a canopy, ID check islands, crash protection devices, cameras and other infrastructure; turnaround area; VAS, overwatch, and denial barrier	31,992	12 months
Total	238,142	~up to 4 years

Note: Size depicts total surface area for the construction project.

2.5.2 Alternative Action

As an alternative to the Proposed Action, the Air Force would construct an expanded parking lot for the Visitor Center at the Main Gate (instead of a new Visitor Center at the Main Gate). One additional inbound lane would be constructed. The gate would operate with three inbound lanes with tandem (2) ID checker positions. An off-street POV inspection area would be constructed with a two-bay canopy. Construction at other gates and operation of the gates would be the same as the Proposed Action described in Subchapter 2.5.2.

2.5.3 No Action Alternative

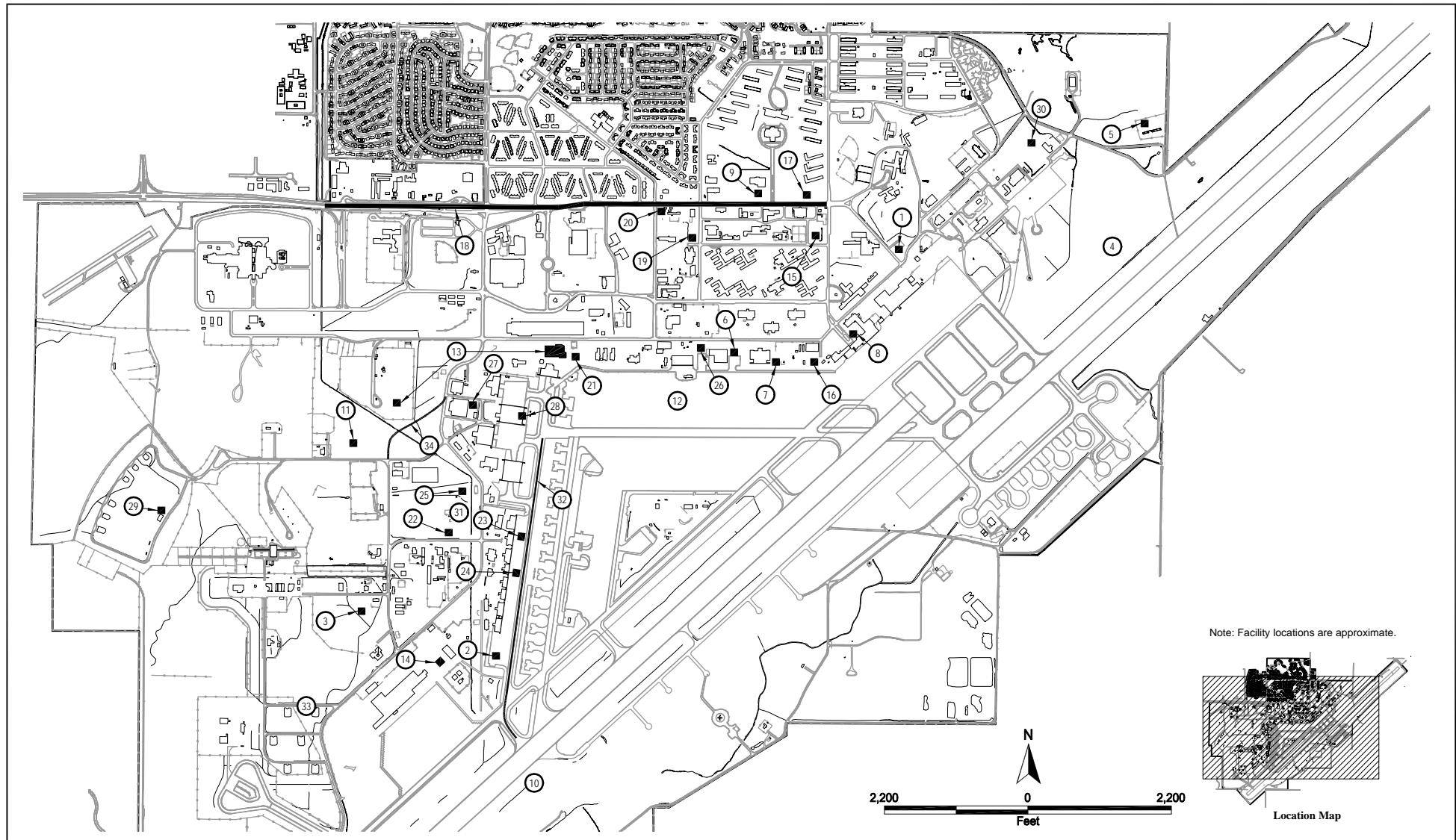
Travis AFB would continue to operate ECFs under existing conditions. The number of active duty military, Reserve Associate military, government civilian, and contractor personnel at the Base would remain at the level assessed in the EA for West Coast Basing of C-17 Aircraft (USAF 2003a). No ECF or other improvements to the Base gates would occur.

2.6 OTHER ACTIONS ANNOUNCED FOR TRAVIS AFB AND THE SURROUNDING AREA

Complete environmental impact analysis of the Proposed Action and alternatives must consider cumulative impacts due to other actions. A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

Travis AFB staff identified numerous other past and reasonably foreseeable actions (or groups of actions) that would occur on the Base, as shown on Table 2-3. Twenty-two of these projects are considered reasonably foreseeable actions (projects with start dates of FY 03 through 06) could occur during the same time period as the Proposed Action. Figure 2-5 shows the locations of the other actions.

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**LEGEND**

- (1) Army Recruiting Battalion
- (2) Coast Guard
- (3) Global Reach Deployment Facility
- (4) Repair Runway 21 Left/03 Right
- (5) Combat Arms Campus
- (6) Fire/Crash Rescue Station
- (7) In-Flight Kitchen/Fleet Service Facility
- (8) Passenger Terminal
- (9) Fitness Center
- (10) Repair Runway 21 Right/03 Left
- (11) Base Civil Engineer Complex
- (12) 300 Parking Apron Improvement
- (13) Fuel Operations Facilities
- (14) Aerial Port Facility
- (15) Band Facility
- (16) RAPCON Facility
- (17) Visitors Quarters
- (18) Repair Travis Ave.
- (19) Flight Simulator Facility
- (20) Maintenance Training Facility

- (21) Aerospace Ground Equipment Facility
- (22) Aircraft Parts Store
- (23) Two-Bay Hangar
- (24) Nose Deck
- (25) Squadron Operations/Aircraft Maintenance Unit Facility
- (26) Engine Storage Facility
- (27) Addition and Alteration to Composite Shop

- (28) Wheel and Tire Shop
- (29) Munition Maintenance Facility
- (30) Addition and Alteration to Life Support Shop
- (31) Electrical, Utilities, and Supporting Infrastructure*
- (32) Taxiway Lima Repairs
- (33) C-17 Roads and Utilities*
- (34) Road Adjustment Total

* In Area Surrounding Specific Projects

Construction Projects Locations - Cumulative Condition Travis AFB
Figure 2-5

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Table 2-3 Construction Project Information, Cumulative Condition, Travis AFB

Project	Size (Sq Ft)	Start Date (FY)	Duration
Aerial Port Facility	2,400	02	9 months
Acoustical Support (Band) Facility	25,000	02	12 months
C-17 Flight Simulator Facility, Aircraft Parts Store, Squadron Ops/AMU Facility	114,478	03	18 months
Fuel Operations Facility	1,000,000	03	18 months
Radar Approach Control Center	31,500	03	10 months
Visitors Quarters	42,353	03	18 months
Repair Travis Avenue	1,100	03	4 months
Perimeter Fence Improvements	1,267,200	03	12 months
Construct Army Recruiting Battalion Facilities	12,152	04	12 months
300 Parking Apron Improvement	2,500,000	04	10 months
Global Reach Deployment Facility	92,190	04	12 months
Repair Runway 21L/03R Electrical Elements	NA	04	6 months
Construct Combat Arms Campus	18,083	04	12 months
New Water Pipeline	27,000	04	12 months
Digital Airport Surveillance Radar	33,600	04	6 months
Pre-Fab Hangar 809	3,000	04	6 months
Concrete Crushing Plant (recycling facility)	6,000	04	6 months
Equestrian Center Improvements	1,500	04	3 months
15,000-gallon Gasoline Tank	5,000	04	3 months
C-17 Roads and Utilities	40,000	05	18 months
Construct Fire/Crash Rescue Station	30,192	05	12 months
Construct Coast Guard Facility	103,000	05	30 months
C-17 Maintenance Training Facility, AGE Facility, Nose Dock, Engine Storage Facility, Munitions Maintenance Facility	132,750	06	25 months
Construct In-flight Kitchen/Fleet Service Facility	23,000	06	12 months
C-17 Two-Bay Hangar, Addition/Alteration to Composite Shop, Wheel and Tire Shop, Taxiway Lima Repairs	719,730	07	25 months
Construct Passenger Terminal	94,519	07	12 months
C-17 Addition and Alteration to Life Support Shop, Road Adjustments	243,800	08	8 months
Construct Fitness Center Addition	43,000	08	12 months
Repair Runway 21R/03L Electrical Elements	NA	08	6 months
Base Civil Engineer Complex	118,877	08	12 months
Total	5,791,424	NA	NA

Note: Size depicts total surface area for the facility. Start date reflected as FY. NA=not applicable.

2.7 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

The preferred alternative is the Proposed Action that includes: construction of improved entry control facilities at the Main, North, and Hospital Gates. A new visitor center would be constructed at the Main Gate.

2.8 COMPARISON OF ENVIRONMENTAL EFFECTS OF ALL ALTERNATIVES

Table 2-4 summarizes the impacts of the Proposed Action, Alternative Action, and No Action Alternatives.

**Table 2-4 Summary of Environmental Impacts for the Proposed Action,
Alternative Action, and No Action Alternative**

Resource (Applicable Subchapter)	Proposed Action	Alternative Action	No Action Alternative
Mission (4.1)	The activities associated with the Proposed Action would enable the Base to continue to accomplish its current mission.	The activities associated with the Alternative Action would enable the Base to continue to accomplish its current mission.	No significant impacts to the mission occur from the No Action Alternative.
Land Use (4.2)	The Proposed Action would not result in any conflicts with existing land use.	Impacts to land use would be the same as the Proposed Action.	No significant impacts to the land use occur from the No Action Alternative.
Noise (4.3)	Construction noise would be temporary, occurring only during daytime, and will cease when the project is completed. Sleep interference and noise-induced hearing loss would not be expected. Noise related to the construction projects may have a short-term impact at nearby buildings. Outdoor noise from construction activity at an occupied building 50 feet from the noise source could be as high as 75 to 89 dB. The corresponding interior noise levels during construction activity would be reduced from by approximately 18 to 27 dB due to the noise level reduction properties of the building's construction materials. This reduced level of noise could annoy less than 15 percent of nearby persons and cause disruption of speech during the noise event. Operational noise at the improved gates would be similar to existing conditions. Impacts to the noise environment would not be considered significant.	Impacts to noise would be the same as the Proposed Action.	No significant impacts to noise occur from the baseline activities.

**Table 2-4 Summary of Environmental Impacts for the Proposed Action,
 Alternative Action, and No Action Alternative (...continued)**

Resource (Applicable Subchapter)	Proposed Action	Alternative Action	No Action Alternative
Air Quality (4.4)	Construction activities would result in the generation of air pollutant emissions during the estimated four-year construction period. The greatest increase in emissions at Travis AFB would be from particulate matter (PM ₁₀) (3.14 tons per year [tpy]) equating to 0.004 percent of the PM ₁₀ emissions within the air quality control region (AQCR). The emissions would be temporary and would cease after completion of the activity. Emissions fall below the 10 percent level that would be considered regionally significant by the USEPA if the region were nonattainment for any of the criteria pollutants as stated in 40 CFR 51, Subpart W, Section 852. However, the area is in attainment. No change to air quality would be expected during operation of the improved gates. Therefore, the air emission impacts from the construction activities associated with the Proposed Action would not be considered significant.	Impacts to air quality would be the same as the Proposed Action.	No significant impacts to air quality occur from the baseline activities.
Biological Resources (4.5)	No endangered, threatened, or special status species are documented in the construction areas. The North Gate Duck Pond area, a riparian corridor associated with Union Creek, would be avoided during construction at the North Gate. With incorporation of best management practices, impacts to biological resources would not be expected.	Impacts to biological resources would be the same as the Proposed Action.	No significant impacts to biological resources occur from the baseline activities.

**Table 2-4 Summary of Environmental Impacts for the Proposed Action,
Alternative Action, and No Action Alternative (...continued)**

Resource (Applicable Subchapter)	Proposed Action	Alternative Action	No Action Alternative
Cultural Resources (4.6)	The Proposed Action would not result in impacts to archaeological resources on Travis AFB. Design and construction of improvements to the Base gates would be conducted in accordance with the Travis AFB Cultural Resources Management Plan. Impacts to historic resources would be avoided. No Native American concerns are known on Travis AFB.	Impacts to cultural resources would be the same as the Proposed Action.	No significant impacts to cultural resources occur from the baseline activities.
Utilities and Infrastructure (4.7)	Solid Waste Management. Construction and demolition debris disposal equates to less than 0.005 percent of the total remaining landfill capacity. Solid waste generated by personnel would not change as a result of the Proposed Action. Impacts from solid waste disposal would not be considered significant. Transportation Systems. The Proposed Action would not result in any change in the numbers of vehicles that access the Base via each of the gates. Traffic congestion would be expected to decrease as a result of the Proposed Action.	Impacts to solid waste management and transportation systems would be the same as the Proposed Action.	No significant impacts to utilities and infrastructure occur from the baseline activities.

**Table 2-4 Summary of Environmental Impacts for the Proposed Action,
Alternative Action, and No Action Alternative (...continued)**

Resource (Applicable Subchapter)	Proposed Action	Alternative Action	No Action Alternative
Environmental Management (4.8)	Facilities design and construction activities will be coordinated with the Base Environmental Flight and Bioenvironmental Engineering Office to ensure that construction will avoid interference with any ongoing Environmental Restoration Program investigation and remediation work and will not worsen the condition of this site.	Impacts to environmental management would be the same as the Proposed Action.	No significant impacts to environmental management occur from the baseline activities.
Hazardous Materials and Wastes (4.9)	The contractor would comply with all regulatory guidance for the use and disposal of hazardous materials and wastes during construction activities. The volumes of hazardous materials purchased for, and hazardous wastes generated by, operation of the gates would be negligible. It is not anticipated any new hazardous materials would be needed. The existing hazardous materials handling and hazardous waste disposal processes and procedures would accommodate the activities associated with gate operation.	Impacts to hazardous materials and wastes would be the same as the Proposed Action.	No significant impacts occur from baseline activities.

CHAPTER 3 **DESCRIPTION OF THE AFFECTED ENVIRONMENT**

3.1 MISSION

Travis AFB is home to the Headquarters 15th Air Force, the 60th Air Mobility Wing (AMW), the 349th AMW, an Air Force Reserve Command Reserve Associate unit, and dozens of other tenant units, including a detachment of the Navy's Fleet Air Reconnaissance Squadron THREE and the Army's 3rd Brigade, 91st Division. The primary mission of the Base is to be "America's First Choice" for providing rapid global mobility: the airlift and air refueling assets needed to deliver military aircraft, people and equipment wherever and whenever they are needed. To support the National Military Strategy, the 60 and 349 AMWs fly worldwide airlift missions as well as train all C-5 and KC-10 aircrew positions to ensure crews are current in airlift and air refueling procedures.

3.2 LAND USE

The Travis AFB General Plan provides guidance for land use and future development on the Base. Existing land use patterns on Travis AFB have evolved over the past 50 years, based on the configuration of the two northeast-southwest runways. Facility development and supporting infrastructure have evolved over time as missions and requirements have changed or expanded. The General Plan identifies ten land use categories for the Base, dependent on the function of the activity within each facility. Aircraft operations and maintenance uses are prevalent adjacent to the runways and aircraft parking ramps. Community and administrative uses are predominantly located in the center of the Base, with accompanied housing located in the extreme northern portion of the Base. Open space persists in the western and southern Base areas. The Travis AFB General Plan provides recommendations for the expansion and redevelopment of Aircraft Operations and Maintenance land use areas should mission growth or reorganization occur.

Land use in the immediate vicinity of Travis AFB (see Figure 3-1) is predominantly agricultural with interspersed rural residences, except to the west, where urban development is directly adjacent to the Base. North of Air Base Parkway in the City of Fairfield, there are areas of residential, industrial, commercial, and public uses extending from Cannon Drive to Peabody Road. To the north of the city limits and east of Peabody Road, similar uses occur in unincorporated Solano County. To the west of Peabody Road, industrial development is occurring within the City of Fairfield, with major urbanized portions of the City of Fairfield extending to a point approximately a half mile west of the Base. Residential development in Suisun City is located near the southwest corner of the Base along Walters Road, but is separated from the Base by safety clearance zone easements where no residential development is allowed. The Suisun City Lambrecht Sports Complex and Public Works Yard are located at the southwest corner of the Base.

The Travis AFB Land Use Compatibility Plan (June 13, 2002), adopted by the Solano County Airport Land Use Commission (ALUC), provides direction for the future use of lands in the vicinity of the Base. Land use issues of interest to the ALUC include those involving

noise and overflight compatibility, obstruction clearances, and safety of persons on the ground. Noise contours were also produced as part of the Land Use Compatibility Plan based on a “maximum mission” scenario that assumed a doubling of current (*i.e.*, 2002 or baseline) aircraft operations. These contours are depicted on Figure 3-2. A determination of consistency with the Land Use Compatibility Plan is required of all new development proposals within the ALUC planning boundary, which includes all lands that could be negatively impacted by aircraft operations from the Base. Standards for the ALUC determination of consistency are similar to the land use compatibility standards of the Travis AFB Air Installation Compatible Use Zone (AICUZ). If the ALUC finds that a proposed development is not consistent with the Travis AFB Land Use Compatibility Plan, the responsible local agency may amend the proposal to be consistent, or it may override the ALUC determination with a two-thirds vote of its governing body.

The Air Installation Compatible Use Zone program is an ongoing DoD program based on noise and safety that is designed to promote compatible land uses in the areas surrounding military airfields. AICUZ land use guidelines reflect land use recommendations for CZs, accident potential zones APZ I and II, and four noise zones. A CZ is the area that has the greatest potential for an accident of the three zones (*i.e.*, CZ, APZ I, and APZ II). The CZ is an obstruction-free surface on the ground that begins at the end of the runway and the APZs extend beyond the CZ. APZ I has less accident potential than the CZ and APZ II has less potential than APZ I. These guidelines have been established on the basis of studies prepared and sponsored by the Department of Housing and Urban Development, USEPA, Air Force, in addition to state and local agencies. The guidelines recommend land uses that are compatible with airfield operations while allowing maximum beneficial use of adjacent properties.

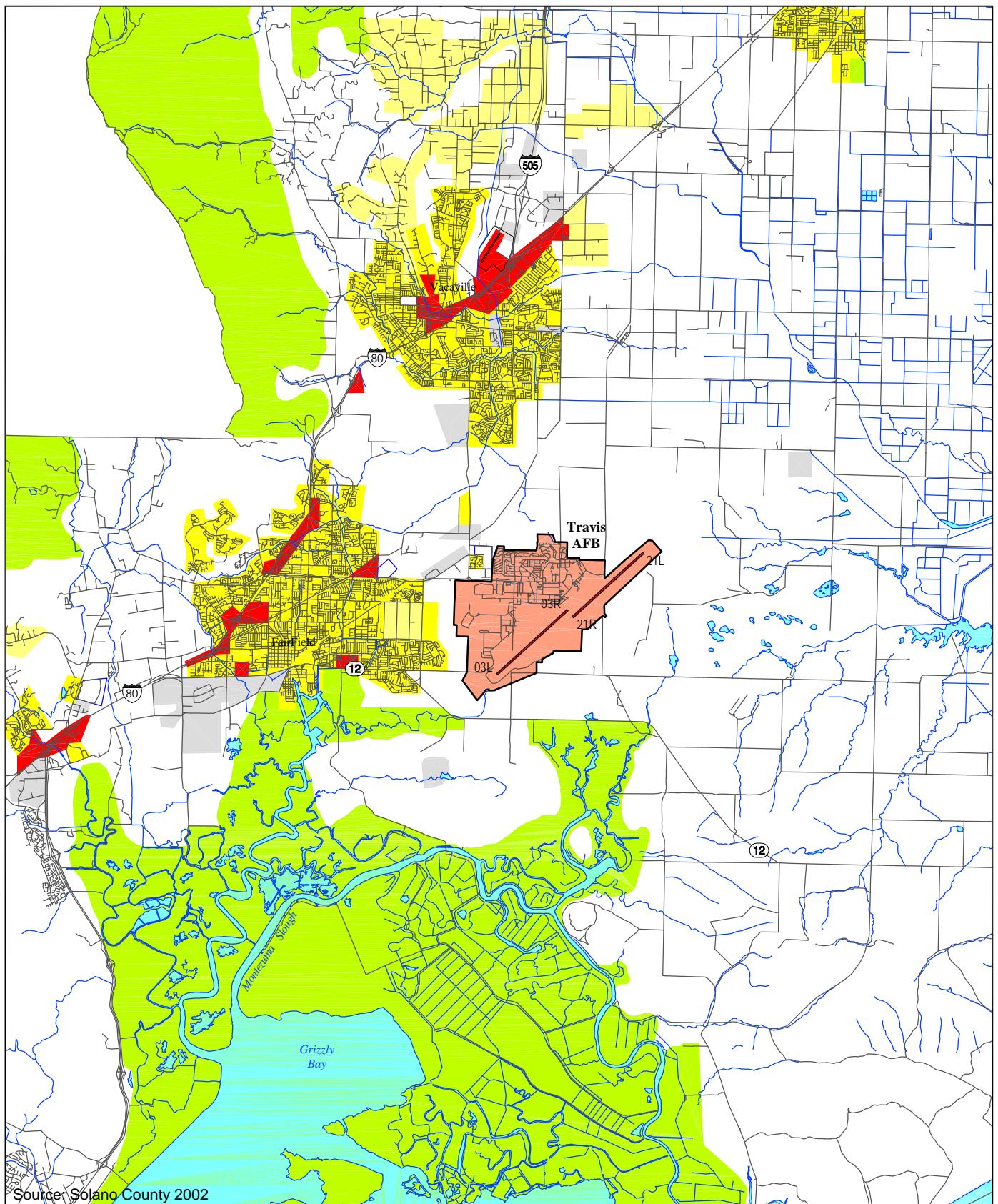
The Air Force has developed a natural resources management strategy for Travis AFB which is documented in the base Integrated Natural Resources Management Plan (INRMP). This strategy integrates ongoing development with goals and policies of the land use plan. To facilitate oversight of activities and management of natural resources, Base property has been divided into Natural Resource Management Units (NRMU) with specific management strategies. Natural resources management also includes agricultural outleasing on grazing management units on Travis AFB. A summary of the existing on- and off-Base land uses surrounding each of the Base gates, and the applicable NRMU for each gate, is provided in Table 3-1.

Table 3-1 Surrounding Land Use at Base Gates

Gate	NRMU	Surrounding Land Use	
		On-Base	Off-Base
Main	Cantonment	Family Campground (south of Main Gate)	Agricultural
Hospital	Cantonment	Open Space/Medical Center	Agricultural
North	Cantonment	North Gate Park (Duck Pond) used for outdoor recreation, jogging, picnicking and fishing	Agricultural
Forbes	Cantonment	Housing	Agricultural (and schools)

Source: USAF 2001

NRMU Natural Resource Management Unit



Travis Air Force Base

LEGEND

- Air Force Installation
- Commercial
- Residential
- Rural Residential

- Industrial
- Agricultural
- Recreation/Open
- Public

— Runway

— Roadway

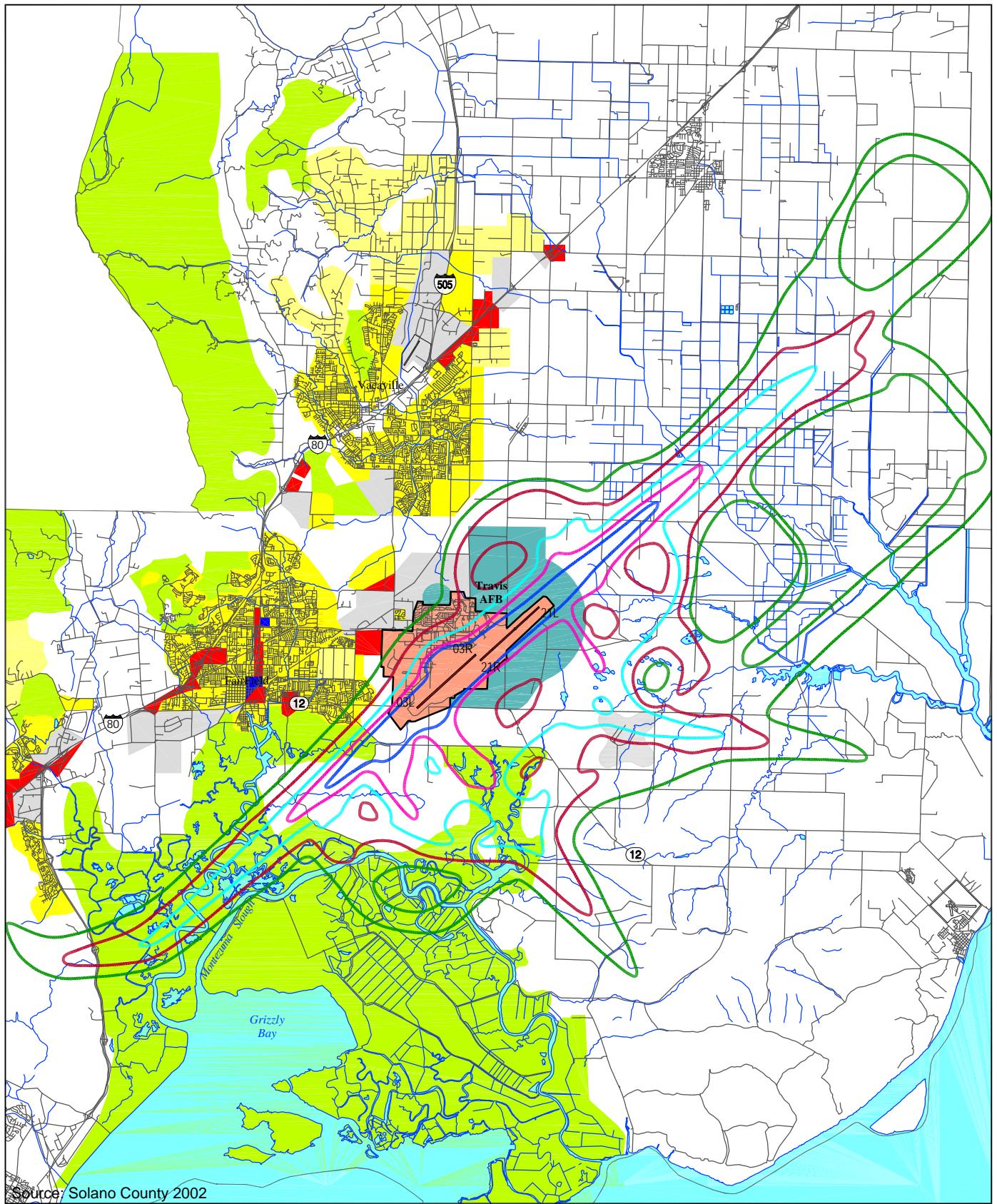
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Off-Base Land Use Travis AFB

Figure 3-1

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Travis Air Force Base

LEGEND

— CNEL 60 dBA Contour	■ Air Force Installation	■ Industrial	■ Travis Reserve
— CNEL 65 dBA Contour	■ Commercial	■ Agricultural	— Runway
— CNEL 70 dBA Contour	■ Residential	■ Recreation/Open	— Roadway
— CNEL 75 dBA Contour	■ Rural Residential		
— CNEL 80 dBA Contour			

19,000 0 19,000
Fleet

Local Zoning Near Travis AFB

Figure 3-2

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3.3 NOISE

3.3.1 Background Information

The characteristics of sound include parameters such as amplitude (loudness), frequency (pitch), and duration. Sound varies over an extremely large range of amplitudes. The decibel (dB), a logarithmic unit that accounts for the large variations in amplitude, is the accepted standard unit for describing levels of sound.

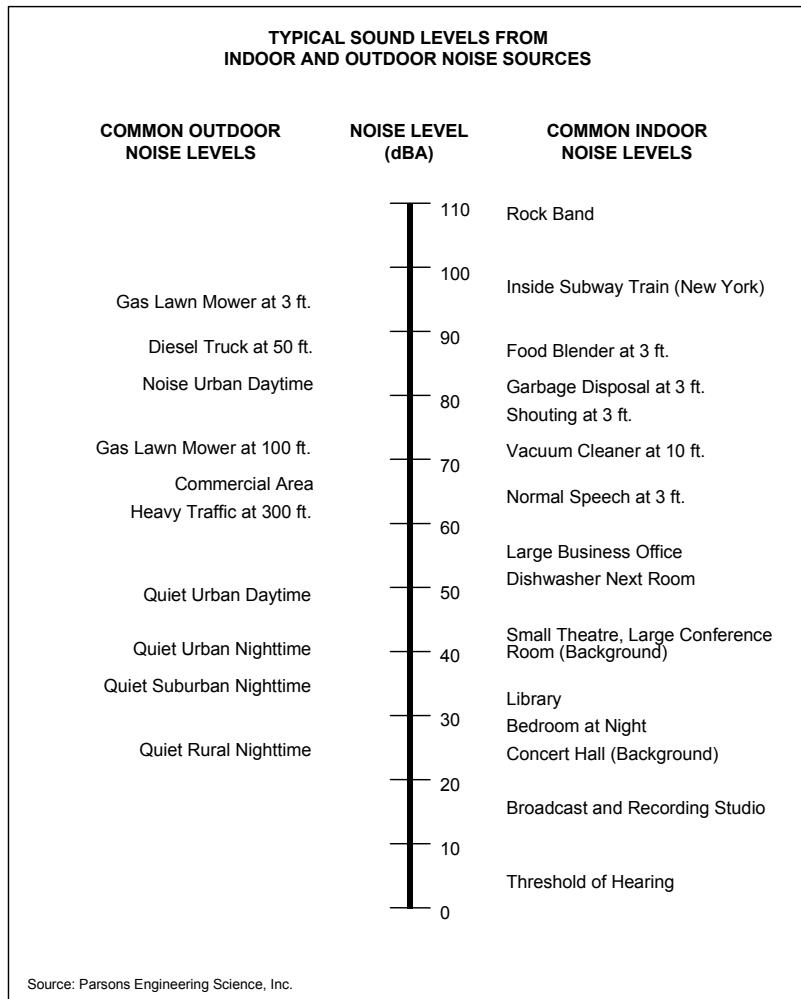
Different sounds have different frequency contents. Because the human ear is not equally sensitive to sound at all frequencies, a frequency-dependent adjustment, called A-weighting and expressed as dBA, has been devised to measure sound similar to the way the human hearing system responds. The adjustments in amplitude, established by the American National Standards Institute (ANSI S1.4 1983), are applied to the frequency content of the sound. Figure 3-3 depicts typical A-weighted sound pressure levels for various sources. For example, 65 dBA is equivalent to normal speech at a distance of 3 feet.

Noise is defined as sound that is undesirable because it interferes with speech and hearing, is intense enough to damage hearing, or is otherwise annoying. Noise levels often change with time. To compare sound levels over different time periods, several descriptors have been developed that take into account this time-varying nature. These descriptors are used to assess and correlate the various effects of noise on humans.

The day-night average sound Level (DNL) metric is a measure of the total community noise environment. DNL is the average A-weighted sound level over a 24-hour period, with a 10 dBA adjustment added to the nighttime levels (between 10:00 p.m. and 7:00 a.m.). This adjustment is an effort to account for increased human sensitivity to nighttime noise events. DNL was endorsed by the United States Environmental Protection Agency (USEPA) for use by federal agencies and has been adopted by the Department of Housing and Urban Development, Federal Aviation Administration, and DoD. DNL is an accepted unit for quantifying annoyance to humans by general environmental noise, including aircraft noise. The Federal Interagency Committee on Urban Noise (FICUN) developed land use compatibility guidelines for noise (USDOT 1980). Compatible or incompatible land use is determined by comparing the predicted DNL level at a site with the recommended land uses.

Methods used to quantify the effects of noise, such as annoyance, speech interference, and health and hearing loss, have undergone extensive scientific development during the past several decades. The most reliable measures are noise-induced annoyance and hearing loss. The effects of noise exposure are summarized in the following paragraphs.

Figure 3-3 Typical A-Weighted Noise Levels



Annoyance. Noise annoyance is defined by the USEPA as any negative subjective reaction to noise by an individual or group. Table 3-2 presents the results of over a dozen studies of the relationship between noise and annoyance levels. This relationship has been suggested by the National Academy of Sciences (NAS 1977) and was reevaluated (Fidell *et al.* 1988) for use in describing people's reaction to semi-continuous (transportation) noise. These data are shown to provide a perspective on the level of annoyance that might be anticipated. For example, 15 to 25 percent of persons exposed on a long-term basis to DNL of 65 to 70 dBA would be expected to be highly annoyed by noise events.

Table 3-2 Percentage of Persons Highly Annoyed by Noise Exposure

Noise Exposure Zone (DNL dBA)	Percentage of Persons Highly Annoyed
<65	<15
65-70	15-25
70-75	25-37
75-80	37-52
>80	61

Note: Noise impacts on individuals vary. The "low" numbers above indicate individuals with higher tolerance of noise while the "high" numbers indicate individuals with higher sensitivity to noise.

Source: Adapted from NAS 1977.

Speech Interference. One of the ways noise affects daily life is by prevention or impairment of speech communication. In a noisy environment, understanding speech is diminished when speech signals are masked by intruding noises. Reduced speech intelligibility also may have other effects. For example, if speech understanding is interrupted, performance may be reduced, annoyance may increase, and learning may be impaired. Elevated noise levels can interfere with speech, causing annoyance or communication difficulties. Based on a variety of studies, DNL 75 dBA indicates a good probability for frequent speech disruption. This level produces ratings of "barely acceptable" for intelligibility of spoken material. Increasing the level of noise to 80 dB reduces the intelligibility to zero, even if people speak in loud voices.

Hearing Loss. Hearing loss is measured in dBs and refers to a permanent auditory threshold shift of an individual's hearing. The USEPA recommended a limiting daily equivalent energy value or equivalent sound level of 70 dBA to protect against hearing impairment over a period of 40 years (USEPA 1974). This daily energy average would translate into a DNL value of approximately 75 dBA or greater. Based on a USEPA study, hearing loss is not expected in people exposed to a DNL of 75 dBA or less (USEPA 1974). The potential for hearing loss involves direct exposure to DNL levels above 75 dBA on a regular, continuing, long-term basis. FICUN states that hearing loss due to noise: 1) may begin to occur in people exposed to long-term noise at or above a DNL of 75 dBA; 2) will not likely occur in people exposed to noise between a DNL of 70 and 75 dBA; and 3) will not occur in people exposed to noise less than a DNL of 70 dBA (USDOT 1980).

An outdoor DNL of 75 dBA is considered the threshold above which the risk of hearing loss is evaluated. Following guidelines recommended by the Committee on Hearing, Bioacoustics, and Biomechanics, the average change in the threshold of hearing for people exposed to DNL equal to or greater than 75 dBA was evaluated. Results indicated that an average of 1 dBA hearing loss could be expected for people exposed to DNL equal to or greater than 75 dBA. For the most sensitive 10 percent of the exposed population, the maximum anticipated hearing loss would be 4 dBA. These hearing loss projections must be considered conservative as calculations are based on an average daily outdoor exposure of 16 hours (7:00 a.m. to 10:00 p.m.) over a 40-year period. It is doubtful any individual would spend this amount of time outdoors within the DNL equal to or greater than 75 dBA noise exposure area.

3.3.2 Existing Noise Levels

Aircraft operations are the primary source of noise at Travis AFB. Aircraft activities include aircraft and aircraft maintenance operations. During periods of no flying activity, noise results primarily from aircraft maintenance and shop operations, ground traffic movement, occasional construction, and similar sources. This noise is almost entirely restricted to the Base itself and is comparable to sounds that occur in typical communities. It is during periods of aircraft ground or flight activity that the noise environment changes.

Based on the examples in Figure 3-3, ambient noise at most of the gates would range from approximately 50 dBA (quiet urban daytime) to about 70 dBA (noisy urban daytime) when aircraft operations are not occurring. The aircraft operations related noise level (USAF 2003a) at the gates is as follows:

- Less than the 60 dBA at the Main, Hospital and Forbes Gate;
- From 65 to 70 dBA at the North Gate.

Interior noise levels in area buildings would be reduced by approximately 18 to 27 dB due to the noise level reduction (NLR) properties of the structures' construction materials (USDOT 1992).

FICUN developed land use compatibility guidelines for noise in terms of DNL (USDOT 1980). DNL is the metric used by the Air Force in determining noise impacts of military airfield operations for land use planning. Air Force land use compatibility guidelines (relative to DNL values) are documented in the *AICUZ Program Manager's Guide* (USAF 1999). Four noise zones are used in AICUZ studies to identify noise impacts from aircraft operations. These noise zones range from DNL of 65 dBA to DNL of 80 dBA. For example, it is recommended that no residential uses, such as homes, multifamily dwellings, dormitories, hotels, and mobile home parks be located where the noise is expected to exceed a DNL of 65 dBA. If noise sensitive structures are located in areas within a DNL range of 65 to 75 dBA, the structures should be designed to achieve a 25 to 30 dBA interior noise reduction. For outdoor activities, the USEPA recommends DNL of 55 dBA as the sound level below which there is no reason to suspect that the general population will be at risk from any noise effects (USEPA 1974).

Air Force policy for many years has been to implement, where feasible, NLR measures in on-Base residential and public use buildings. NLR measures are intended to reduce indoor noise levels to DNL 45 dBA or less. Recommended NLR for housing is 25 dBA for units in the DNL 65 to 70 dBA noise zone and 30 dBA for those in the DNL 70 to 75 dBA zone. Buildings constructed prior to implementation of the Noise Reduction Policy were not necessarily built to NLR standards. Since implementation of the NLR standards, all new buildings are designed and constructed to comply with the appropriate NLR standards (USAF 1978).

3.4 AIR QUALITY

3.4.1 Air Pollutants and Regulations

Air quality in any given region is measured by the concentration of various pollutants in the atmosphere, typically expressed in units of parts per million (ppm) or in units of micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Air quality is not only determined by the types and quantities of atmospheric pollutants, but also by surface topography, size of the air basin, and by prevailing meteorological conditions.

The Clean Air Act (CAA), as amended in 1977 and 1990, provides the basis for regulating air pollution to the atmosphere. Different provisions of the CAA apply depending on where the source is located, which pollutants are being emitted, and in what amounts. The CAA required the USEPA to establish ambient ceilings for certain criteria pollutants. These criteria pollutants are usually referred to as the pollutants for which the USEPA has established National Ambient Air Quality Standards (NAAQS). The ceilings were based on the latest scientific information regarding the effects a pollutant may have on public health or welfare. Subsequently, the USEPA promulgated regulations that set NAAQS. Two classes of standards were established: primary and secondary. Primary standards define levels of air quality necessary, with an adequate margin of safety, to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards define levels of air quality necessary to protect public welfare (e.g., decreased visibility, damage to animals, crops, vegetation, wildlife, and buildings) from any known or anticipated adverse effects of a pollutant.

Air quality standards are currently in place for six pollutants or "criteria" pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), sulfur oxides (SO_x, measured as sulfur dioxide [SO₂]), lead (Pb), and particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM₁₀). There are many suspended particles in the atmosphere with aerodynamic diameters larger than 10 micrometers. The collective of all particle sizes is commonly referred to as total suspended particulates (TSP). TSP is defined as particulate matter as measured by the methods outlined in 40 CFR Part 50, Appendix B. The NAAQS are the cornerstone of the CAA. Although not directly enforceable, they are the benchmark for the establishment of emission limitations by the states for the pollutants USEPA determines may endanger public health or welfare.

Ozone (ground-level ozone), which is a major component of “smog,” is a secondary pollutant formed in the atmosphere by photochemical reactions involving previously emitted pollutants or precursors. Ozone precursors are mainly nitrogen oxides (NO_x) and volatile organic compounds (VOC). NO_x is the designation given to the group of all oxygenated nitrogen species, including nitric oxide (NO), NO_2 , nitrous oxide (N_2O), and others. However, only NO, NO_2 , and N_2O are found in appreciable quantities in the atmosphere. VOCs are organic compounds (containing at least carbon and hydrogen) that participate in photochemical reactions and include carbonaceous compounds except metallic carbonates, metallic carbides, ammonium carbonate, carbon dioxide (CO_2), and carbonic acid. Some VOCs are considered non-reactive under atmospheric conditions and include methane, ethane, and several other organic compounds.

As noted above, ozone is a secondary pollutant and is not directly emitted from common emissions sources. Therefore, to control ozone in the atmosphere, the effort is made to control NO_x and VOC emissions. For this reason, NO_x and VOCs emissions are calculated and reported in emission inventories.

The CAA does not make the NAAQS directly enforceable. However, the CAA does require each state to promulgate a State Implementation Plan (SIP) that provides for “implementation, maintenance, and enforcement” of the NAAQS in each AQCR in the state. The CAA also allows states to adopt air quality standards more stringent than the federal standards. The ambient air quality standards for California are contained in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. Table 3-3 lists the national and California ambient air quality standards.

Based on the requirements outlined in EPA’s general conformity rule published in 58 Federal Register 63214 (November 30, 1993) and codified at 40 CFR Part 93, Subpart B (for federal agencies), a conformity analysis is required to analyze whether the applicable criteria air pollutant emissions associated with the project equal or exceed the threshold emission limits that trigger the need to conduct a formal conformity determination. The intent of the conformity rule is to encourage long range planning by evaluating the air quality impacts from federal actions before the projects are undertaken. This rule establishes an elaborate process for analyzing and determining whether a proposed project in a nonattainment area conforms to the SIP and federal standards.

The fundamental method by which the USEPA tracks compliance with the NAAQS is the designation of a particular region as “attainment” or “nonattainment”. Based on the NAAQS, each state is divided into three types of areas for each of the criteria pollutants. The areas are:

- Those areas that are in compliance with the NAAQS (attainment);
- Those areas that do not meet the ambient air quality standards (nonattainment); and,
- Those areas where a determination of attainment/nonattainment cannot be made due to a lack of monitoring data (unclassifiable – treated as attainment until proven otherwise).

Table 3-3 National and California Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	Primary NAAQS^{a,b,c}	Secondary NAAQS^d	California Standards^{e,f}
Carbon Monoxide	8-hour 1-hour	9 ppm (10,000 µg/m ³) 35 ppm (40,000 µg/m ³)	No standard No standard	9 ppm (10,000 µg/m ³) 20 ppm (20,000 µg/m ³)
Lead	Quarterly 30 Day Avg.	1.5 µg/m ³ No Standard	1.5 µg/m ³ No Standard	No Standard 1.5 µg/m ³
Nitrogen Oxides (measured as NO ₂)	Annual 1-Hour	0.0543 ppm (100 µg/m ³) No Standard	0.0543 ppm (100 µg/m ³) No Standard	No Standard 0.25 ppm (470 µg/m ³)
Ozone ^e	8-hour 1-hour	0.08 ppm (157 µg/m ³) 0.12 ppm (235 µg/m ³)	0.08 ppm (157 µg/m ³) 0.12 ppm (235 µg/m ³)	No Standard 0.09 ppm (180 µg/m ³)
Particulate Matter (measured as PM ₁₀)	Annual 24-hour	50 µg/m ³ 150 µg/m ³	50 µg/m ³ 150 µg/m ³	30 µg/m ³ 50 µg/m ³
Particulate Matter (measured as PM _{2.5}) ^e	Annual 24-hour	15 µg/m ³ 66 µg/m ³	15 µg/m ³ 66 µg/m ³	15 µg/m ³ 66 µg/m ³
Sulfur Oxides (measured as SO ₂)	Annual 24-hour 3-hour 1-Hour	0.03 ppm (80 µg/m ³) 0.14 ppm (365 µg/m ³) No standard No Standard	No standard No standard 0.50 ppm (1,300 µg/m ³) No Standard	No Standard 0.04 ppm (105 µg/m ³) No Standard 0.25 ppm (655 µg/m ³)

^a National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24 hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. For PM_{2.5}, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

^b National Primary Standards: The levels of air quality necessary to protect the public health with an adequate margin of safety. Each state must attain the primary standards no later than three years after the state implementation plan is approved by the USEPA.

^c New federal 8-hour ozone and fine particulate matter standards were promulgated by USEPA on July 18, 1997. The federal 1-hour ozone standard continues to apply in areas that violated the standard.

^d National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the state implementation plan is approved by the USEPA.

^e California standards for ozone, carbon monoxide, sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter – PM10, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

^f Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon reference temperature of 25°C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas

3.4.2 Regional Air Quality

Generally, areas in violation of one or more of the NAAQS are designated nonattainment and must comply with stringent restrictions until all of the standards are met. In the case of O₃, CO, and PM₁₀, USEPA divides nonattainment areas into different categories, depending on the

severity of the problem in each area. Each nonattainment category has a separate deadline for attainment and a different set of control requirements under the SIP.

The California Air Resources Board has regulatory authority for air pollution control in the State of California. The San Francisco Bay Area Air Basin (SFBAAB) AQCR is comprised of parts of nine counties. Travis AFB is located in the SFBAAB AQCR. According to federal regulations contained in 40 CFR 81.305, all nine counties in the AQCR are better than national standards for SO₂, NO₂ and PM_{2.5}, unclassifiable for CO and PM₁₀ and nonattainment (not classified/moderate) for O₃.

3.4.3 Baseline Air Emissions

An air emissions inventory is an estimate of total mass emissions of pollutants generated from a source or sources over a period of time, typically a year. Accurate air emissions inventories are needed for estimating the relationship between emissions sources and air quality. Quantities of air pollutants are generally measured in pounds (lb) per year or tons per year (tpy). All emission sources may be categorized as either mobile or stationary emission sources. Stationary emission sources may include boilers, generators, fueling operations, industrial processes, and burning activities, among others. Mobile emission sources typically include vehicle operations.

The calendar year (CY) 2000 air emissions inventory summary for the SFBAAB AQCR, which includes reported permitted stationary and mobile air emission sources, is presented in Table 3-4.

Table 3-4 Baseline Air Pollutant Emissions

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	NO_x (tpy)	SO_x (tpy)	PM₁₀ (tpy)
AQCR CY02 Totals	656,300	181,405	220,825	33,215	85,775

Source: BAAQMD 2003.

Note: VOC is not a criteria air pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant.

3.5 BIOLOGICAL RESOURCES

This subchapter characterizes the vegetation and wildlife found in the area of the Proposed Action on Travis AFB, including a discussion of threatened and endangered species. Management and conservation of listed endangered and threatened species on military installations is required by the Endangered Species Act (ESA), DoD Instruction 4715.3 *Environmental Conservation Program* (3 May 1996) and Air Force Instruction (AFI) 32-7064 (*Integrated Natural Resources Management*). Under terms of the ESA, candidate species have no protection; however, the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) typically request that impacts be avoided wherever possible. This is particularly pertinent to species where listing as threatened or endangered is imminent. The Air Force manages and integrates natural resource considerations into the installation mission in the Integrated Natural Resources Management Program (INRMP) for each installation. Detailed descriptions of installation natural resource assets, characteristics, and conservation

management approaches are provided in the INRMP for Travis AFB which was updated in 2001 (USAF 2001a).

3.5.1 Vegetation and Wildlife

The biotic communities on Travis AFB may be broadly distinguished into terrestrial and aquatic types, each with different flora and fauna. Aquatic community associations at Travis AFB are classified into: riparian wetlands, wet meadows, vernal pools, and lacustrine. Terrestrial community associations are: annual grassland, ruderal-disturbed, riparian corridors, and urban.

Due to historic land use practices, relatively pristine habitats are restricted to small areas, typically associated with vernal pools and riparian corridors along Union Creek. Significant portions of Travis AFB are paved or otherwise impervious surfaces (*i.e.*, runways, taxiways, ramps, roads, buildings, and parking lots).

Botanical inventories on Travis AFB have recorded 53 families, 159 *genera*, and 252 species of plants. Exotic species constitute 48 percent (120 species) of the installation flora. The predominant community types are annual grassland, ruderal-disturbed and urban.

Travis AFB contains areas of relatively pristine vernal pools and vernal swales. Vernal pools, despite being a minor habitat type, account for up to 44 percent (110 species) of the total number of species on Travis AFB.

Riparian Wetland. Riparian wetlands are the ecotone between in-stream aquatic and upland communities along Union Creek. Union Creek is about 2½ miles long, entering the installation along the northern border and exiting at the southwest corner. Union Creek divides into two branches north of Travis AFB. The west branch is channelized, concrete-lined or contained within culverts (nearly ½ mile under the runway and taxiways); with sluggish flows except during storm events. The east branch enters North Gate Park Pond (near the North Gate). Traveling underground, the creek emerges on the east and south side of the runway as Union Creek (riparian corridor). Union Creek is highly modified and managed.

Various willow species and perennial pepperweed dominate this community. Aquatic plant species in Union Creek, principally the eastern branch, include duckweed, Eurasian and American water milfoil, and pondweed.

Union Creek supports an abundance of fish such as western mosquitofish, fathead minnow, hitch, threespine stickleback, largemouth bass, rainwater killifish, and aquatic invertebrates that attract birds such as mallard, great egret, and great blue heron. The stickleback and hitch are native while all other fish species are introduced.

Wet Meadow. Scattered throughout the installation uplands are shallow depressions that contain seasonal wet meadows. Seasonally saturated soils support a variety of grasses and forbs which are maintained by mowing, or used as pasture for cattle and horse.

Exotic grasses dominate this community, including Italian ryegrass, ripgut brome and wild oats. Other species include coyote thistle, popcorn flower, downingia, pacific meadow foxtail, and filaree.

Vernal Pool. Vernal pools and vernal swales are found throughout the installation, consisting of shallow depressions or small, shallow ponds that fill with water during the rainy season, drying out during spring and summer. Vernal pools occur where surface soils are underlain by an impervious layer of durapan, hardpan, or bedrock (BioSystems Analysis 1994). Vernal swales, which may also be seasonally inundated, are ecologically and floristically related to vernal pools; however, vernal swales serve as water collection sources for vernal pools.

Vernal pools and vernal swales occur in lower densities in the flightline, industrial and residential areas of Travis AFB. Most high-quality vernal pools are located in the northwest portion of the installation. About 322 sites are identified as containing vernal pool vegetation. These sites are either single, isolated pools, or hydrologically connected pool clusters, varying in size up to 1 acre.

Plant species identified in the vernal pools are dominated by native species but may contain a few exotic species. Common vernal pool species include saltgrass, annual hairgrass, goldfields, round woolly marbles, popcorn flower, downingia, meadow barley, coyote thistle, hyssop loosestrife, spike rush, flowering quillwort, alkali milk vetch, and San Joaquin spearscale (Earth Tech 2000a, 2000b and 2001). Vernal pools may provide habitat for several species of crustaceans, most of which are protected under the ESA (BioSystems Analysis 1994). Vernal pools and vernal swales may also support a variety of amphibians.

The USFWS recently proposed Critical Habitat for 11 vernal pool species listed under the ESA (USFWS 2002a). Travis AFB was excluded from critical habitat designation in the final ruling made July 15, 2003.

Lacustrine. North Gate Park Pond, directly west of the North Gate area, is a human-made, open-water community created by impounding Union Creek. This impoundment is 2.2 surface acres in size with an average depth of 5 feet. Associated with North Gate Park Pond is a well-maintained recreational park with mowed turf-grasses and managed landscaping for shade and cover for picnics.

Aquatic plants include rooted, submerged, and floating macrophytes such as duckweed, American water-milfoil, and leafy pondweed, and some emergent species such as cattails (Earth Tech 2000b). A recreational flat-water fishery is maintained including game fish: large-mouth bass, bluegill, channel catfish, and green sunfish.

Other small ponds supporting a lacustrine community are located in the southeast portion of the installation. Aquatic-upland ecotones of these ponds are dominated by grasses.

Annual Grass/Forb. Grasslands are located primarily in the west and southwest portions of Travis AFB and comprise approximately 1,735 acres. The majority of the grasslands are

subject to mowing as part of the BASH program. Grasslands along the base perimeter are subject to discing to provide firebreaks. Grasslands are also utilized for livestock grazing.

The dominant grassland species are exotic and include: soft chess, Italian ryegrass, Zorro fescue, filaree, wild oat, ripgut brome, and Harding grass. Most abundant wildlife species are red-winged blackbird, ring-necked pheasant, northwestern fence lizard, gopher snake, ground squirrel and the deer mouse.

Ruderal-Disturbed. The largest habitat component of Travis AFB is ruderal-disturbed, particularly the southeastern area adjacent to Union Creek and the former installation hunting area (USAF 2001a,c). Ruderal vegetation consists of exotic grasses and forbs. Generally, this biotic community occurs in built-up (urban) areas such as road shoulders and road fills, construction sites, runways and taxiway medians, the fire training area, or other sites subjected to recurrent soil disturbances.

Community species composition is mainly coyote brush, blue gum, California pepper tree, and black locust, yellow star thistle, cut-leaved geranium, annual grasses such as wild oats and ripgut brome.

This community type supports a wide variety of invertebrate and vertebrate species, including, but not limited to: Pacific tree frog, northwestern fence lizards, gopher snake, black-tailed jackrabbit, deer mouse, house mouse, California ground squirrel, red-winged blackbird, killdeer, and western meadowlark.

Riparian Corridor. Forming a narrow, linear habitat ecotone between uplands and aquatic habitats are riparian corridors. Wooded riparian corridors exist mostly along Union Creek and edges of North Gate Park Pond.

Dominant understory species include wild rye, perennial pepperweed, Harding grass, and saltgrass. Canopy cover is provided by willows, coyote brush, and other woody shrub species. Emergent species such as cattails may be present. Typical wildlife includes Pacific tree frog, western pond turtle, western fence lizard, gopher snake, and California red-sided garter snake (USAF 2001a,c).

Mallards, red-winged blackbirds, Brewer's blackbird, cliff swallows, barn swallows, and violet-green swallows breed within or near riparian corridors. Migratory Neotropical birds utilize riparian corridors seasonally as pathways to and from breeding/wintering areas (Adams and Dove 1989; Small 1994).

Urban. This habitat is associated with nonnative landscaped vegetation, predominantly irrigated residential lawns throughout the housing and building areas in the north central portion of Travis AFB. These areas are periodically subject to disturbance such as mowing. Representative wildlife includes song sparrow, tricolored blackbird, killdeer, house sparrow, western harvest mouse, and California ground squirrel (USAF 2001a).

The vegetative community association at the affected gates on Travis AFB is shown on Table 3-5.

Table 3-5 Vegetation at Travis AFB Gates and Adjoining Areas

Gate	Community Association	Description
Main	Urban/Ruderal-Disturbed	Landscaped vegetation
North	Urban/Ruderal-Disturbed	Gate is located east of North Gate Duck Pond, a riparian wetland/riparian corridor
Hospital	Urban/Ruderal-Disturbed	Landscaped vegetation
Forbes	Urban/Ruderal-Disturbed	Landscaped vegetation/agricultural areas

Mammals. Twenty-nine species of mammals occur on Travis AFB (USAF 2001a). The deer mouse, house mouse, and western harvest mouse are the most common small mammal species. The deer mouse is most common in annual grasslands. The house mouse is most common in the riparian area. Larger mammals include black-tailed jackrabbit, California ground squirrel, opossum, striped skunk, feral cats, coyote, red fox, muskrat, long-tailed weasel, raccoon, mink, beaver, and bobcat. Beaver have dammed Union Creek on occasion. California ground squirrels, black-tailed jackrabbits, and feral cats are common throughout the Base.

Birds. A total of 153 species are known or suspected to occur on Travis AFB, including 35 nesting species (USAF 2001a). Twelve species are classified as species of special concern by the California Department of Fish and Game (CDFG), USFWS, or California Partners in Flight.

The red-winged blackbird was the most common species observed in all habitats, except for riparian and residential areas, where the mallard was most common. A survey conducted on Travis AFB also recorded the greatest number of birds in the Union Creek riparian habitat. The greatest diversity of species was observed in the ecotone of ruderal-disturbed and wetlands.

Reptiles. Fourteen reptile species have been identified on Travis AFB (USAF 2001a). The northwestern fence lizard and gopher snake were abundant in a wide range of habitat types including annual grass-forb, ruderal-disturbed, and riparian habitats of Union Creek. Grazing land-use of any intensity in any habitat type reduced the occurrence of the gopher snake and fence lizard. Riparian habitat types were regularly occupied by western pond turtles and California red-sided garter snake.

Amphibians. Six species of amphibian have been identified as occurring at Travis AFB (USAF 2001a). Weston identified the Pacific tree frog as the only common amphibian on Travis AFB. This species is primarily associated with riparian and early successional habitat types. Egg masses and tadpoles of Pacific tree frogs were commonly observed standing waters of ditches adjacent to roads.

A single sighting of the California tiger salamander has been documented. The salamander is listed as a Candidate (Endangered in Santa Barbara and Sonoma Counties) under the ESA.

The introduced bullfrog occurs on Travis AFB. This species, due to its highly competitive and predatory nature, can displace other amphibian species, especially disturbance-sensitive species like the California tiger salamander.

Fish. Ten fish species have been identified on Travis AFB (USAF 2001a). Four recreational species of fish occur in North Gate Park Pond: large-mouth bass, bluegill, green sunfish, and channel catfish. In 2001, Chinook salmon was first documented on Travis AFB.

Aquatic Invertebrates. Benthic and vernal pool invertebrates are the two groups of aquatic species found on Travis AFB. The predominant macrobenthic organisms identified in the sediment samples of Union Creek include oligochaetes and chironomids. These organisms occur in areas of high organic debris which is indicative of degraded water quality from siltation and organic pollution possibly from agricultural runoff originating north of Travis AFB. A total of 33 different invertebrate taxa have been reported from the sampling of 121 vernal pools in the northwest portion of Travis AFB (USAF 2001a).

3.5.2 Threatened, Endangered, and Special Status Species

The ESA recognizes that many species of fish, wildlife, and plants are in danger of, or threatened with, extinction. The ESA established a national policy that all federal agencies should work toward conservation of these species. The Air Force complies with the mandates of the ESA by identifying endangered and threatened species and habitat on Air Force lands, and implementing programs for the conservation of these species, in coordination with the USFWS.

Species with federal listing on Travis AFB include one endangered, one threatened, two candidate, and five Species of Concern. Table 3-6 identifies threatened and endangered species that may occur on Travis AFB.

The endangered Contra Costa Goldfields is the only protected plant species under the ESA documented on Travis AFB (Earth Tech 2000a, 2000b, 2001). Due to the proximity of the threatened Colusa grass and endangered Solano grass in Solano County, these species may be present but remain undocumented on Travis AFB.

Three vernal pool obligate species listed as rare by the California Native Plant Society (CNPS 2001) are found on Travis AFB: Contra Costa goldfields, San Joaquin spearscale, and alkali milkvetch. The spearscale and milkvetch are listed as federal species of concern (CDFG 2002).

Birds and Mammals. A variety of listed species occur in Solano County, but due to species-specific habitat requirements and the lack of suitable habitat at Travis AFB, these species do not occur on the Base. Repeated biological inventories and ecological studies have not identified any Threatened, Endangered, or Candidate bird or mammals species on Travis

AFB. Four federal Species of Concern have been documented on Travis AFB: loggerhead shrike, western burrowing owl, long-billed curlew and rufous hummingbird.

The habitat of western burrowing owl is open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. A subterranean nester, this species is dependent upon burrowing mammals, most notably, the California ground squirrel. Western burrowing owl, a Federal and State Species of Concern, occurs in grasslands close to the Main and Hospital Gates and may occur at the proposed gate areas.

Table 3-6 Special Status Species Occurring or Potentially Occurring on Travis AFB

Common Name	Scientific Name	Federal Status	State Status	CNPS Status	Habitat Requirements
Plants					
Contra Costa goldfields	<i>Lasthenia conjugens</i>	FE	None	List 1B	Drying borders of vernal pools and seasonally wet grasslands. Generally abundant in northwest corner of the Base and at southwest end of main runway.
Brittlescale	<i>Atriplex depressa</i>	None	None	List 1B	Grows in alkaline and clay soils below 500 feet. Scattered among vernal pools in northwest corner of the Base.
San Joaquin (valley) saltbush	<i>Atriplex joaquinana</i>	FSC	None	List 1B	Found in seasonally wet alkaline habitats, such as alkaline grasslands, below 1,000 feet. Occurs in northwest corner of the Base.
Alkali milk vetch	<i>Astragalus tener</i> var. <i>tener</i>	None	None	List 1B	Grows in seasonally moist areas with alkaline or adobe clay soil such as alkaline vernal pools, grasslands and playas, at elevations below 500 feet. Found scattered in vernal pools, northwest corner of the Base.
Amphibians					
California tiger salamander	<i>Ambystoma californiense</i>	FC	None	-	Grasslands and open oak woodlands and temporary ponds. One dead California Tiger Salamander was identified on the Base.
Birds					
Loggerhead shrike	<i>Lanius ludovicianus</i>	FSC	None	-	Grasslands and open meadows. Identified on the Base.
Western burrowing owl	<i>Athene cunicularia hypugea</i>	FSC	CSC	-	Grasslands, sometimes found in man-made structures such as storm drains and beneath cement and asphalt structures. Identified on the Base.
Long-billed curlew	<i>Numenius americanus</i>	FSC	CSC	-	Large vernal pools, temporary aquatic habitats. Identified on the Base.
Rufous hummingbird	<i>Selasphorus rufus</i>	FSC	None	-	Eucalyptus groves. Identified on the Base.
Fish					
Chinook salmon - Central Valley fall/late fall-run	<i>Oncorhynchus tshawytscha</i>	FC	SE	-	In 1999, designated as threatened for all naturally spawned spring-run, from the Sacramento San Joaquin River mainstem and its tributaries. First documented on the Base in 2001.
Invertebrates					
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT	None	-	Found in vernal pools, sometimes found in a variety of temporary aquatic habitats such as roadside ditches. Adults and eggs found in vernal pools on Base.

Source: Modified from USAF, 2001a

CSC = California Special Species of Concern

FC = Listed as a candidate proposed to be listed as threatened or endangered by the federal government

FE = Listed as endangered by the federal government

FP = Fully Protected

FSC = Listed as Species of Concern by the federal government

FT = Listed as threatened by the federal government

List 1B = Plants rare, threatened, or endangered in California or elsewhere

ST = Listed as threatened by the state government

SE = Listed as endangered by the state government

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Reptiles and Amphibians. The California tiger salamander is known from a single specimen found dead in grassland habitat near a large stock pond on the Castle Terrace Housing site prior to construction of the housing project. It likely died while moving between ponds on the site during a recent storm event. Suitable habitat for this species exists in the current Castle Terrace Housing Preserve area. A large population of this species is located in large vernal pools adjacent to the eastern border of Travis AFB.

The threatened giant garter snake, a riparian-obligate species, is known nearby in Solano County, but has not been documented on Travis AFB. Also, the threatened California red-legged frog is documented in Solano County but not the Base.

Fish. Pacific salmon, including steelhead, are anadromous fish. Anadromous defines species that move from the sea (saltwater) to fresh water for reproduction. Salmon and anadromous trout are most noted for their life cycle history that entails hatching in cool headwater tributaries of large river systems and moving out to saltwater as young fish (Groot and Margolis 1991; Moyle 2002).

Each of the species of Pacific salmon and trout has genetically distinct populations (runs), termed an evolutionarily significant unit (ESU), associated with major watersheds or tributaries. Under the ESA, the ESU serves as an alternative definition of distinct population segments (NMFS 2002a). Due to differing life history strategies and conservation threat, each ESU is treated as a separate species for administrative purposes under the ESA. Of two ESUs of Chinook salmon; Central Valley spring-run (Threatened) and Central Valley fall/late fall-run (Candidate), only the latter is present on Travis AFB. Steelhead Central Valley ESU, is listed as Threatened and present elsewhere in Solano County. Steelhead could eventually occur on Travis AFB as populations recover.

Historically, Union Creek on Travis AFB was intermittent, with flows corresponding to seasonal wet periods. When Travis AFB was established, there was a need to manage and control groundwater and surface runoff, which lead to the channelization of Union Creek. The west branch of Union Creek has been significantly degraded from natural conditions (USAF 2001a,c). Historic records do not document Pacific salmon or trout as occurring in Union Creek (NMFS 2000b, 2002c).

Only the Chinook salmon fall/late fall-run, a Candidate species, has been identified as occurring on Travis AFB. The proposed stream crossings of Union Creek are approximately one mile from sites with Chinook salmon. Recent hatchery stocks of Chinook salmon may be the source of fish recently observed in Union Creek on both side of the runway according to California Department of Fish and Game biologists (R. Holmes, Travis AFB, *pers. comm.*). Salmon restoration and conservation is complicated by the displacement of native fish (natural-spawning) by hatchery-reared fish (Moyle 2002).

Suitable habitat for salmon is absent in Union Creek (Bjornn and Reiser 1991). Union Creek lacks the gravel substrate, shade trees, predictable and/or adequate flows, and stable temperatures required to maintain a healthy salmon fishery. It is not expected that salmon

would establish or use this creek in a successful manner until substantial improvements to Union Creek are made.

Invertebrates. Only the threatened vernal pool fairy shrimp has been documented as present at Travis AFB (Earth Tech 2000a). Other protected vernal pool crustaceans, the endangered vernal pool tadpole shrimp and endangered Conservancy fairy shrimp may be present but remain undocumented.

Other listed invertebrate species occurring in Solano County that may be present are the threatened Valley elderberry longhorn beetle and threatened Delta green ground beetle.

3.5.3 Wetlands

Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

Wetlands on Travis AFB include wet meadows, vernal pools, and lacustrine areas. Wetlands on Travis AFB are almost exclusively emergent systems of wet meadows and vernal pools associated with depressions, streams and ditches. A few small areas of wetlands are associated with Union Creek. Over 300 sites are identified as containing vernal pool vegetation, as described previously in Subchapter 3.5.1.

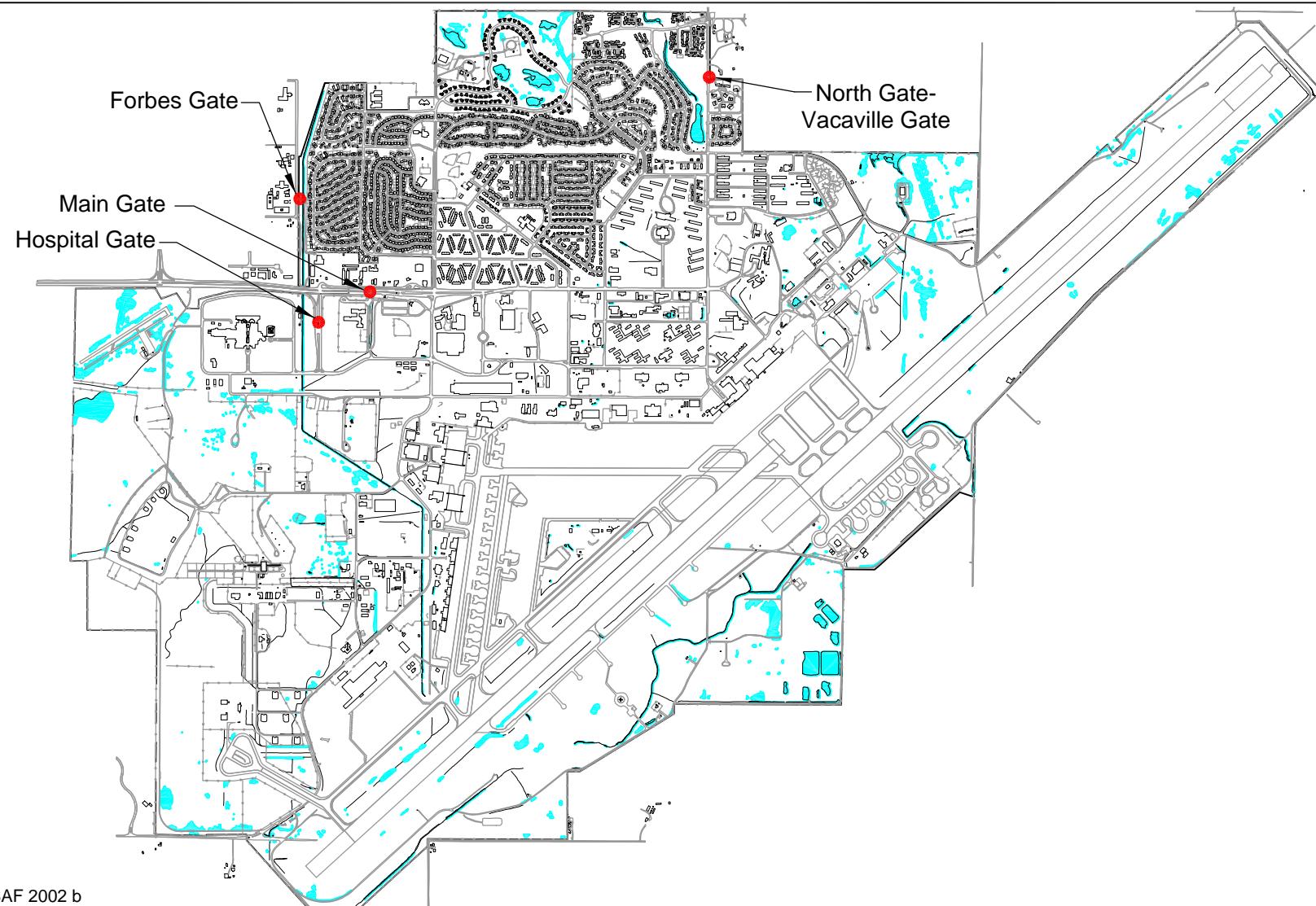
Wetland meadows are scattered throughout the Base in depressional areas, which are maintained by mowing, or used as pasture for cattle and horse. Wet meadows are usually wet throughout the rainy season (USAF 2001a).

A man-made, open-water area associated with North Gate Park Pond was created by the impoundment of Union Creek. North Gate Park Pond is 2.2 surface acres and has an average depth of approximately 5 feet. A number of small ponds are also present in the southeast portion of the Base and exhibit an open-water environment (USAF 2001a). Wetlands on Travis AFB are shown in Figure 3-4.

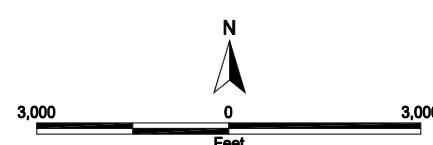
Wetlands near construction areas for the Proposed Action are located west of the North Gate (North Gate Park Pond). Open water in the western branch of Union Creek is found in the drainage near the Forbes Gate. An ephemeral drainage which feeds into Union Creek is found west of the Main Gate Project, but outside the project footprint.

3.5.4 Floodplains

Travis AFB has two areas within the 100-year flood zone. The western branch of Union Creek is approximately 8.6 acres in size and serves as a drainage channel approximately 15 to 25 feet wide, 15,000 feet long, and from 4 to 15 feet deep. The channel runs south along the west boundary of Travis AFB crossing Forbes Road near the Forbes Gate. It then proceeds along the east edge of the David Grant Medical Center and continues south for 3,500 feet. The



Travis Air Force Base
LEGEND



Wetlands on Travis AFB

Figure 3-4

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channel then turns southeast and follows Ragsdale Street for 6,400 feet before it crosses under Ragsdale Street. It then runs south until it ends at the edge of Taxiway 30, a distance of approximately 800 feet. This channel fills with water during heavy rains and is the main drainage for a large area of the west side of the Base (USAF 2001a).

The second floodplain is the approximately 25-acre riparian zone along Union Creek. The creek enters the Base from the north through the center of the Patriot Village housing area and flows into the pond in North Gate Park. From there, it runs underground toward the south and is discharged to the surface on the south side of the flight line just west of Bldg 1175. From there, it flows southwest parallel to the flight line and exits the Base at the southwest corner. The distance traveled is approximately 17,000 feet; the width and depth vary from 10 to 15 feet and from 4 to 15 feet, respectively (USAF 2001a).

3.6 CULTURAL RESOURCES

Cultural resources include prehistoric and historical archaeological sites, buildings, structures, districts, artifacts, objects, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, or religious purposes. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations at 36 CFR 800, federal agencies must take into consideration the potential effect of an undertaking on "historic properties," which refers to cultural resources listed in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Sites not yet evaluated are considered potentially eligible for inclusion in the NRHP and, as such, are afforded the same regulatory consideration as nominated properties.

Numerous laws and regulations require federal agencies consider the effects of a Proposed Action on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the federal agency proposing the action, and prescribe the relationship between other involved agencies (*e.g.*, State Offices of Historic Preservation, the Advisory Council on Historic Preservation).

Only those potential historic properties determined to be significant under cultural resource legislation are subject to protection or consideration by a federal agency. The quality of significance is considered in terms of applicability of the NRHP criteria. Significant cultural resources, either prehistoric or historic in age, are referred to as "historic properties."

Cultural resources on Air Force installations are managed in accordance with environmental laws that include: AFI 32-7065, *Cultural Resources Management*; 32 CFR 989; Executive Order 11593 of 1971; National Historic Preservation Act of 1966, as amended; Archaeological and Historic Preservation Act (AHPA) of 1974 (Public Law [PL] 93-291); the Archaeological Resources Protection Act (ARPA) of 1979 (PL 96-95); the American Indian Religious Freedom Act (AIRFA) of 1978 (PL 95-341); and, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (PL 101-601). In addition, any proposed

undertaking must comply with the State Historic Preservation Office (SHPO) guidelines for the state of California.

For this analysis, the Region of Influence (ROI) is synonymous with the Area of Potential Effect (APE), as defined by the NHPA. The ROI for the analysis of cultural resources includes the areas subject to disturbance from facility construction, addition, and alteration accomplished to support the construction of proposed AT/FP structures at the gate areas.

A total of 19 cultural resource investigations have been conducted on or near Travis AFB since 1909. Three of these cultural resources investigations have been conducted within or adjacent to the ROI on Travis AFB, as identified on Table 3-7.

Table 3-7 Previous Cultural Resources Investigations Within or Adjacent to the Travis AFB Region of Influence

Year	Study
1980	North Bay Aqueduct Alignment Evaluation
1995	Section 110 Base-Wide Cultural Resources Inventory
1996	Travis Air Force Base, California: Inventory of Cold War Properties

Source: USAF 2003b

3.6.1 Archaeological Resources

Archaeological resources are prehistoric or historic places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may include some surface deposits and below ground (subsurface) deposits. Prehistoric archaeological resources may include village sites, campsites, lithic scatters, burials, hearths (or hearth features), processing sites, caves, and rock shelters. Historical archaeological resources may include farmsteads, roads, privies, trash deposits and/or middens.

The 2003 Travis AFB ICRMP Update identified ten archaeological sites on the Base, as shown on Table 3-8. The sites consisted of three prehistoric archaeological sites and seven historical archaeological sites. None of the seven historical archaeological sites are eligible for the NRHP and none require further investigation (USAF 2003b).

With the exception of the Hospital Gate, none of area to be affected by the Proposed Action on Travis AFB are located on or near known archaeological sites. Prehistoric site CA-Sol-313 is located in the vicinity of Parker Road south of the Hospital Gate. This site has been destroyed by previous construction, and had undergone data recovery before destruction. Archaeologists have concluded that the lithic component of CA-SoL-313 could not have occurred as a result of natural causes. The artifact assemblage consisted of cobbles and coble fragments, primary flakes and one hopper mortar (USAF 2003b).

Table 3-8 Archaeological Sites on Travis AFB

Site	Description	Occupation Date	Status
CA-Sol-313	Lithic site	Unknown	Data recovery conducted; destroyed for construction of David Grant Medical Center.
CA-Sol-314	Lithic site	Unknown	Considered disturbed; destroyed for construction of David Grant Medical Center.
CA-CCo-252	Shell midden	Unknown	Either destroyed or located off the Base
CA-Sol-383/H	Historic road	Early 20th century	Unknown
TAFB-H-02	Farmstead	Late 19th century	Not NRHP Eligible
TAFB-H-03	Farmstead	Late 19th century	Not NRHP Eligible
TAFB-H-05	Farmstead	Late 19th century	Not NRHP Eligible
TAFB-H-11	Farmstead	Disturbed/Unknown	Not NRHP Eligible
TAFB-H-18	Farmstead	Early 20th Century	Not NRHP Eligible
Golf Course	Farmstead	Early 20th Century	Not NRHP Eligible

Source: USAF 2003h

3.6.2 Historical Resources

Historical resources include buildings and structures, and other physical remains of historic significance that are present above the ground. Historical resources date from the period of initial European contact in this area (*circa* A.D. 1770) and extend into the present. They may include houses, homesteads, farmsteads (and associated support structures or buildings), cabins, forts, schools, bridges, dams, logging sites, military facilities, structures, or buildings, and items of a similar nature.

Historic buildings on Travis AFB include military housing, World War II-era structures and Cold War Era buildings, as described herein:

- A total of 546 Wherry-Capehart housing units constructed in 1958. These structures have not been evaluated for eligibility in the NRHP.
- A total of 39 World War II-era structures. The California SHPO concurred with the determination that none of these structures have strong association with significant events or persons, are architecturally significant, or retain sufficient integrity for inclusion in the NRHP (USAF 2003h).
- A total 27 historic properties associated with the Cold War Era have been determined to be potentially eligible for inclusion in the NRHP. Potentially eligible and non-eligible Cold War Era historic buildings are: structures and buildings in the Armed Forces Special Weapon Project Strategic Air Command Q Area; structures in the Air Defense Command Alert and Readiness Area; and Bldg 810. The preliminary findings for eligibility of Cold War Era historic buildings are pending Air Force concurrence and further study (USAF 2003h).

The Proposed Action improvements and construction at the Base gates would not be located at or near any of the historic buildings on Travis AFB.

3.6.3 Native American Concerns

The California Native American Heritage Commission (NAHC) has identified two Native American groups that may be present within or near Travis AFB: the Cortina Band of Indians and the Wintun Environmental Protection Agency. During preparation of the Integrated CRMP for Travis AFB, the Air Force contacted both groups in July 2002 to request background information regarding prehistoric, historic, and ethnographic land use, as well as information regarding contemporary Native American values or concerns on Travis AFB. No responses have been received by the Base. There is no evidence that any Native American burial grounds or sacred areas are located on Travis AFB that would be subject to the provisions AIRFA or NAGPRA (USAF 2003b).

3.7 UTILITIES AND INFRASTRUCTURE

3.7.1 Solid Waste Management

The management of non-hazardous solid waste generated at Travis AFB during FY 2001 totaled 45.49 tons per day, including both diverted waste and waste sent to a disposal facility. The amount of diverted waste, which includes composting, mulching, recycled, reused, donated, and concrete (construction/demolition) averaged 20.46 tons per day. Travis AFB personnel recycle an average of 1.3 tons per month aluminum, glass, and plastics at the on Base Recycling Center and 1 ton per month at the off Base facility located outside the main gate (Travis General Plan).

Solid waste is collected by Solano Garbage at both the residential and commercial portions of the Base and transported to Potrero Hill Landfill. This landfill has a permit to operate through 2012 based on an annual disposal rate of 800,000 tons per year (2,192 tons per day). A series of expansion cells are currently being constructed at the facility. With the expansion, the landfill will be able to receive municipal waste until 2057 based on the current disposal rates and compensation for anticipated growth in the cities of Ukiah, Sacramento, South San Francisco, Willets and San Jose which are serviced by the Potrero Hill Landfill (Covington 2003).

3.7.2 Transportation Systems

Vehicular traffic enters and exits Travis AFB through five gates: Main Gate on Air Base Parkway; Hospital Gate on Parker Road off Air Base Parkway; North Gate on Burgan Boulevard; Forbes Gate on Forbes Road (for school buses); and South Gate on Ragsdale Street.

The Main Gate on Travis Avenue is the primary entry gate for the Base. A secondary gate, Hospital Gate, provides direct access to the David Grant Medical Center. Two additional secondary gates include the North Gate on Burgan Boulevard and the South Gate at Ragsdale Street in the extreme southwestern part of the Base. The South Gate typically accommodates all truck traffic to the Base. The Forbes Gate on the east side of the housing area, with limited operation, is used primarily for school-related traffic.

The major roadways include Travis Avenue, Ragsdale Street (Cannon Drive), Burgan Boulevard, Parker Road, Hickam Avenue, and Hangar Avenue. Skymaster Drive, Broadway Street, and 1st Street serve as important collector facilities for the Base. Travis Avenue serves as the principal arterial and is oriented in an east-west direction. Ragsdale Street is the principal north-south arterial, extending from Travis Avenue in the north to the South Gate. North of Travis Avenue, Ragsdale Street extends into the residential areas as Cannon Drive. Burgan Boulevard is a key two-lane north-south arterial located on the east side of the Base. Burgan Boulevard extends north-south from the North Gate, terminating at the air passenger/cargo terminal.

Four local arterial roadways provide direct access to Travis AFB: Air Base Parkway, Peabody Road, Burgan Boulevard (known as North Gate Road off the Base), and Scandia Road. Air Base Parkway is the primary east-west arterial serving the Base, connecting to Interstate 80 to the west and running east to the Travis AFB Main Gate. Air Base Parkway is a four-lane divided roadway with limited access at signalized intersections for the major arterial cross-streets. Air Base Parkway carries the majority of the commuter work trips to the Base and provides access for persons destined to the David Grant Medical Center. Peabody Road is a north-south arterial street that intersects Air Base Parkway approximately 1-mile west of the Main Gate. North Gate Road is a north-south roadway connecting to the North Gate of the Base. North Gate intersects with Meridian Road which extends northward to the City of Vacaville. Scandia Road is an east-west roadway that connects to the Travis AFB South Gate. Walters Road (Jepson Parkway) is a north-south arterial that serves Suisun City and eastern areas of the City of Fairfield, providing a critical north-south link between State Route 12 and Air Base Parkway.

The regional highways that serve Travis AFB include: Interstate 80, State Route 12, Interstate 680, and Interstate 505. Interstate 80 is a regional highway that serves the corridor between San Francisco and Sacramento, California. State Route 12 is located south of the Base and primarily serves to move east-west traffic within Solano County. State Route 12 extends from State Route 29 in neighboring Napa County to the Central Valley. Interstate 680 is a north-south regional highway that connects with Interstate 80 in Cordelia, south of the Base. Interstate 680 provides regional access between the Base and areas in Contra Costa and Alameda Counties. Interstate 505 is a north-south regional highway that connects with Interstate 80 in Vacaville, north of the Base.

3.8 ENVIRONMENTAL MANAGEMENT

The Air Force established the Installation Restoration Program (IRP) in 1983 to identify, characterize, and evaluate past disposal sites and remediate contamination on its installations as needed to control migration of contaminants and potential hazards to ecological resources, human health, and the environment in accordance with CERCLA requirements. The program has since been renamed the Environmental Restoration Program (ERP). This program has two parts: former IRP sites that are Environmental Restoration Account (ERA)-eligible; and sites not eligible for ERA but eligible for Environmental Compliance funds.

The Travis AFB IRP Management Action Plan (MAP), describing the status of the environmental restoration and associated compliance programs, and was prepared in November 1998 (USAF 1998a). The MAP presented the comprehensive strategy for implementing response actions necessary to protect human health and the environment. The MAP provided an overview of restoration activities and strategies of the installation restoration and the environmental compliance programs for Travis AFB.

On the basis of ERP data evaluated by the USEPA, Travis AFB was placed on the National Priorities List in 1989. In 1990, the Air Force, USEPA, California Department of Toxic Substances Control, and San Francisco Bay Regional Water Quality Control Board signed a Federal Facility Agreement to establish the framework and schedule for environmental cleanup at Travis AFB.

In 1993, the Base was divided into four Operable Units (OU) to facilitate the overall cleanup program. These units are: the West/Annexes/Basewide OU; West Industrial OU; East Industrial OU; and, North OU. Sites with groundwater, soil, sediment and/or surface water contamination were identified within each OU. The ERP sites include landfills, sludge disposal areas, storm sewer systems, low level radioactive burial, a jet fuel spill area, gasoline stations, a munitions staging area, fire protection training areas, former waste disposal areas, drum storage sites, leaking underground storage tanks and other structures, waste treatment plants, and other areas. Sites with contaminated groundwater include areas with plumes containing chlorinated solvent, organochlorine pesticides and PCBs (USAF 2001b). The Air Force has developed a Long-Term Operation Strategic Plan for the Travis AFB environmental cleanup program to outline ongoing groundwater cleanup activities and monitoring strategies for soil, sediment and surface water remediation actions on the Base (USAF 2001b). None of the four gates is on or adjacent to an ERP site.

3.9 HAZARDOUS MATERIALS AND WASTE

3.9.1 Hazardous Materials

Hazardous materials are those substances defined by CERCLA (42 USC Section 9601, *et seq.*), as amended by the Superfund Amendments and Reauthorization Act (40 CFR 300-372), and the Toxic Substances Control Act (15 USC Section 2601, *et seq.*). The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA) (42 USC 6901, *et seq.*), that was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes. In general, both hazardous materials and wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or to the environment when released or otherwise improperly managed.

Hazardous materials management at Air Force installations is established primarily by Air Force Instruction (AFI) 32-7086, *Hazardous Materials Management*. The AFI incorporates the requirements of all federal regulations, other AFIs, and DoD Directives (DoDD), for reduction of hazardous material uses and purchases.

The purchase and use of hazardous materials on Travis AFB must be authorized by the base's Hazardous Materials Management Plan (HMMP) established by AFI 32-7086, *Hazardous Materials Management*. As part of this program, the base operates a hazardous materials pharmacy. All hazardous materials enter the base through the pharmacy. Base functions request the hazardous material and quantity from the base pharmacy and the material is delivered to or picked up by the requesting function. No hazardous material may be used until it is entered into the Environmental Management Information System and approved for use. Under this system, the hazardous material pharmacy personnel maintain positive records for the location of the containers, from issue to return and ultimate disposal. The HMMP applies to all activities, including contractors.

3.9.2 Hazardous Waste

Unless otherwise exempted by Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) regulations, Resource Conservation and Recovery Act (RCRA), Subtitle C (40 CFR Parts 260 through 279) regulations are administered by the USEPA and are applicable to the management of hazardous wastes. Hazardous waste must be handled, stored, transported, disposed, or recycled in accordance with these regulations. The potential for hazardous waste generation from gate operations is negligible.

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CHAPTER 4 **ENVIRONMENTAL CONSEQUENCES**

4.1 MISSION

The activities associated with the Proposed Action and Alternative Action would enable the Base to continue to accomplish its current mission.

4.2 LAND USE

This subchapter presents an analysis of the potential impacts on land use for Travis AFB and affected areas adjacent to the Base. An impact to land use would be considered significant if one or more of the following occur as a result of the proposed action: (1) conflict with applicable ordinances and/or permit requirements; (2) nonconformance with applicable land use plans; (3) preclusion of adjacent or nearby properties being used for existing activities; or (4) conflict with established uses of an area.

4.2.1 Proposed Action

On-Base land use conflicts would not be expected as a result of the Proposed Action. Proposed improvements to Base gates would be compatible with the general character of existing and planned Base land use patterns. The Travis AFB General Plan has identified planned physical improvements associated with force protection as part of development on the Base. Thus, the proposed facility improvements to gates on Travis AFB as described for the Proposed Action would be consistent with existing and future land use plans and programs identified in the General Plan.

The Proposed Action would have no effect on the noise contours when compared to baseline conditions, and no additional areas would be exposed to higher noise levels. The Proposed Action would not result in any change to existing agricultural outleasing opportunities for on-Base properties. Modifications to the North Gate would not result in loss of any outdoor recreational areas because construction would not occur within the North Gate Park Pond area. The Proposed Action would have no impact on the ability of the Base to continue to manage resources in accordance with land use plans and policies.

4.2.2 Alternative Action

The Alternative Action to expand parking area at the Main Gate without replacement of the visitor center would result in the same impacts to land use as the Proposed Action (Subchapter 4.2.1).

4.2.3 No Action Alternative

No demolition or construction for AT/FP facilities would occur as a result of the No Action Alternative, and the gates would continue to operate under existing conditions. No significant land use impacts result from the No Action Alternative.

4.2.4 Cumulative Impacts

The combination of land use for the Proposed Action and other planned construction projects identified on Table 2-3 is consistent with planned land use patterns identified in the General Plan. No cumulative impacts to land use would be anticipated.

4.2.5 Mitigation

No significant land use impacts would be anticipated from the Proposed or Alternative Actions. Mitigation measures would not be required.

4.3 NOISE

An environmental impact analysis related to noise includes the potential impacts on the local population. In considering the basis for evaluating significance of noise impacts, several items were examined, including: 1) the degree to which noise levels generated by construction and aircraft operation activities would be higher than the ambient noise levels; 2) the degree to which there would be annoyance and/or activity interference; and 3) the exposure of noise-sensitive receptors to noise levels above 65 dBA.

4.3.1 Proposed Action

Assuming that noise from construction and demolition equipment radiates equally in all directions, the sound intensity would diminish inversely as the square of the distance from the source increases. Table 4-1 shows the anticipated sound pressure levels at a distance of 50 feet for miscellaneous heavy equipment.

Table 4-1 Heavy Equipment Noise Levels at 50 Feet

Equipment Type	Number Used¹	Generated Noise Levels, L_p (dB)²
Bulldozer	1	88
Backhoe (rubber tire)	1	80
Front Loader (rubber tire)	1	80
Concrete Truck	1	75
Concrete Finisher	1	80
Crane	1	75
Asphalt Spreader	1	80
Roller	1	80
Flat Bed Truck (18 wheel)	1	75
Scraper	1	89
Trenching Machine	1	85

¹ Estimated number in use at any time.

² L_p = sound pressure level

L_p = sound pressure level

Source: CERL 1978.

Construction work at each of the Base gates would be accomplished under the Proposed Action. Equipment and vehicles involved in site preparation, foundation preparation, construction, and finishing work would generate the primary source of noise from these activities. Construction noise would be intermittent and short-term in duration. Typical noise levels generated by these activities range from 75 to 89 dB at 50 feet from the source.

For the purposes of this assessment, it is estimated the shortest distance between a noise source and a receptor such as a nearby Base building would be about 50 feet. No residential units are within 1,000 feet of the project sites.

Noise related to the construction projects may have a short-term impact on the administrative functions in nearby buildings. Outdoor noise from construction activity at an occupied building 50 feet from the noise source could be as high as 75 to 89 dB (see Table 4-1). The corresponding interior noise levels during construction activity would be reduced from the 75 to 89 dB level by approximately 18 to 27 dB due to the NLR properties of the building's construction materials (USDOT 1992). This reduced level of noise could annoy less than 15 percent of nearby persons (refer to sub-chapter 3.3.2 and Table 3-2) and may cause temporary disruption of speech during the noise event.

The potential for hearing loss involves direct exposure on a regular, continuing, long-term basis to noise levels above 75 dBA. As stated in sub-chapter 3.3.2, hearing loss projections are based on an average daily outdoor exposure of 16 hours over a 40-year period. It is anticipated the construction activities would occur between 7:30 a.m. and 4:00 p.m., 5 days per week for the duration of the project. Individuals would not be outdoors for the entire noise producing period. Under this condition, persons would not be exposed to long-term and regular noise above 75 dB. Therefore, nearby building occupants would not experience loss of hearing. Sleep interference is unlikely because the construction activities would occur during the daytime and the distance between the noise source and residential areas would attenuate the noise.

The number and type of aircraft operations would not change under the Proposed Action. Therefore, the primary source of noise at Travis AFB would continue to be from aircraft operations and the noise contours would not change. It should be noted that noise from flying activities would tend to mask the noise generated by construction projects for the same exposure area. The perception would be that construction noise likely would not be discernible during periods of aircraft operations. However, there could be periods of time during which construction noise could be discerned and provide minor annoyance. This condition would occur when construction activity is underway and flying activity is low.

4.3.2 Alternative Action

The Alternative Action to expand parking area at the Main Gate without replacement of the visitor center would result in the same noise impacts as the Proposed Action (Subchapter 4.3.1). Construction-related noise levels at the Main Gate would be similar to the Proposed Action.

4.3.3 No Action Alternative

No demolition or construction for AT/FP facilities would occur as a result of the No Action Alternative, and the gates would continue to operate under existing conditions. No significant impacts to the noise environment result from the No Action Alternative.

4.3.4 Cumulative Impacts

The distance between construction activities for the Proposed Action and other planned construction projects identified on Table 2-3 is great enough that there would be no combination of construction noise from the project sites. No cumulative noise impacts would be anticipated.

4.3.5 Mitigation

Noise levels would be temporarily increased during the construction activities associated with the Proposed and Alternative Actions. However, the noise impacts would not be significant and mitigation measures would not be required for either the Proposed or Alternative Action.

4.4 AIR QUALITY

Impacts to air quality would be considered significant if federal actions resulted in violation of a NAAQS, resulted in annual emissions of a pollutant greater than 250 tons per year (definition of a “major stationary source” in an attainment area as defined in 40 CFR 52.21(b)(1), or exceeded any significance criteria established by the California SIP.

4.4.1 Proposed Action

Fugitive dust from ground disturbing activities, combustive emissions from construction equipment, and emissions from asphalt paving operations would be generated during construction and demolition. Fugitive dust would be generated from activities associated with site clearing, grading, cut and fill operations, and from vehicular traffic moving over the disturbed site. These emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions.

The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. The USEPA has estimated that uncontrolled fugitive dust emissions from ground-disturbing activities would be emitted at a rate of 80 lbs of TSP per acre per day of disturbance (USEPA 1995). In a USEPA study of air sampling data at a distance of 50 meters downwind from construction activities, PM₁₀ emissions from various open dust sources were determined based on the ratio of PM₁₀ to TSP sampling data. The average PM₁₀ to TSP ratios for top soil removal, aggregate hauling, and cut and fill operations is reported as 0.27, 0.23, and 0.22, respectively (USEPA 1988). Using 0.24 as the average ratio for purposes of analysis, the

emission factor for PM₁₀ dust emissions becomes 19.2 lbs per acre per day of disturbance. Fugitive dust emissions from demolition activities would be generated primarily from building dismemberment, debris loading, and debris hauling. The USEPA has established a recommended emission factor of 0.011 lbs of PM₁₀ per square foot of demolished floor area. This emission factor is based on air sampling data taken from the demolition of a mix of commercial brick, concrete, and steel buildings (USEPA 1988).

The USEPA also assumes that 230 working days are available per year for construction (accounting for weekends, weather, and holidays), and that only half of these working days would result in uncontrolled fugitive dust emissions at the emitted rate described above (USEPA 1995). The construction emissions presented in Table 4-2 include the estimated annual PM₁₀ emissions associated with the Proposed Action at Travis AFB. These emissions would produce slightly elevated short-term PM₁₀ and PM_{2.5} ambient air concentrations. The USEPA estimates that the effects of fugitive dust from construction activities would be reduced significantly with an effective watering program. Watering the disturbed area of the construction site twice per day with approximately 3,500 gallons per acre per day would reduce TSP emissions as much as 50 percent (USEPA 1995).

Specific information describing the types of construction equipment required for a specific task, the hours the equipment is operated, and the operating conditions vary widely from project to project. For purposes of analysis, these parameters were estimated using established cost estimating methodologies for construction and experience with similar types of construction projects (Means 1996). Combustive emissions from construction equipment exhausts were estimated by using USEPA-approved emissions factors for heavy-duty diesel-powered construction equipment (USEPA 1985). The construction emissions presented in Table 4-2 include the estimated annual emissions from construction equipment exhaust associated with the Proposed Action at Travis AFB. As with fugitive dust emissions, combustion emissions would produce slightly elevated air pollutant concentrations. However, the effects would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term impacts.

Table 4-2 shows estimated annual emissions from construction equipment exhaust associated with the Proposed Action at Travis AFB. Values on Table 4-2 reflect the maximum annual estimated emissions during the proposed 4-year construction period. As with fugitive dust emissions, combustion emissions would produce slightly elevated air pollutant concentrations. However, the effects would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term impacts. Table 4-2 also shows the percent of change when compared to the baseline AQCR emissions.

Table 4-2 Proposed Action Emissions, Four-Year Construction Period

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	SO _x (tpy)	NO _x (tpy)	PM ₁₀ (tpy)
AQCR CY02 Totals ^a	656,300	181,405	33,215	220,825	85,775
Proposed Action Annual Construction Emissions (max. annual emissions during 4-yr construction period)	1.62	0.13	0.11	0.96	3.14
Project Emissions as Percent of AQCR Emissions (4-year construction period)	0.000%	0.00007%	0.000%	0.000%	0.004%

a BAAQMD 2003

tpy tons per year

Note: VOC is not a criteria air pollutant; however, VOC is reported because, as an ozone precursor, it is a controlled pollutant.

Table 4-3 provides the maximum annual estimated emissions for a one-year construction period assuming all gates are constructed during the same calendar year. Construction-related emissions would produce slightly elevated air pollutant concentrations. However, the effects would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term impacts. Table 4-3 also includes the estimated annual percent of change when compared to the baseline AQCR emissions (for the 1-year construction period).

Table 4-3 Proposed Action Emissions, One-Year Construction Period

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	SO _x (tpy)	NO _x (tpy)	PM ₁₀ (tpy)
AQCR CY02 Totals ^a	656,300	181,405	33,215	220,825	85,775
Proposed Action Annual Construction Emissions (max. annual emissions during 1-yr construction period)	3.54	0.52	0.31	2.80	9.49
Project Emissions as Percent of AQCR Emissions (1-year construction period)	0.000%	0.000%	0.001%	0.000%	0.012%

a BAAQMD 2003

tpy tons per year

Note: VOC is not a criteria air pollutant; however, VOC is reported because, as an ozone precursor, it is a controlled pollutant.

Emissions would also be expected from asphalt paving operations. The primary pollutant from asphalt paving is CO; however, minor emissions of other criteria pollutants can be expected. To determine potential emissions from asphalt paving operations, it was assumed that the unit weight of asphalt concrete is 149 lb/ft³. The quantity of asphalt concrete required for each construction project is based on an assumed pavement depth of 10 inches. The USEPA has established emission factors for CO, VOC, SO_x, NO_x, and PM₁₀ of 0.340, 0.017, 0.005, 0.025, 0.020 pounds of pollutant per ton of asphalt concrete, respectively. Expected emissions from asphalt paving are included with annual project emissions in Tables 4-2 and 4-3. Emissions from paving would last only as long as the duration of construction activity, fall off rapidly with distance from the construction site, and would not result in long-term impacts.

Review of the data in Tables 4-2 and 4-3 indicates that the greatest increase in emissions from demolition and construction activities would be PM₁₀ (3.14 and 9.49 tons per year), which

respectively equates to 0.004 and 0.012 percent of the PM₁₀ emissions within the AQCR. The emissions would be temporary and would cease after completion of the activity. Emissions fall below the 10 percent level that would be considered regionally significant by the USEPA if the region were nonattainment for any of the criteria pollutants as stated in 40 CFR 51, Subpart W, Section 852. However, the area is in attainment. Therefore, the air emission impacts from the construction activities associated with the Proposed Action would not be considered significant.

Based on the requirements outlined in the USEPA general conformity rule published in 58 Federal Register 63214 (November 30, 1993) and codified at 40 CFR Part 93, Subpart B (for federal agencies), a conformity analysis is required to analyze whether the applicable criteria air pollutant emissions associated with the project equal or exceed the threshold emission limits that trigger the need to conduct a formal conformity determination. The intent of the conformity rule is to encourage long range planning by evaluating air quality impacts from federal actions before the projects are undertaken. This rule establishes an elaborate process for analyzing and determining whether a proposed project in a nonattainment area conforms to the SIP and federal standards. As reflected by the conformity analysis calculations, emissions from the Proposed Action would fall below the 10 percent level that would be considered regionally significant by the USEPA if the region were nonattainment. However, the AQCR is in attainment. For these reasons a conformity determination would not be required.

A new 8-hour standard for ozone has also been proposed. However, a federal court blocked the implementation of the standard. Therefore, ozone is not analyzed.

4.4.2 Alternative Action

The Alternative Action to the parking area at the Main Gate would require construction activities similar in nature to the Proposed Action. Because construction would be similar to that of the Proposed Action, impacts to the air quality would be the same as described in Subchapter 4.3.1 (Tables 4-2 and 4-3). Construction emissions may have a short-term impact, but would not result in long-term changes to air quality.

4.4.3 No Action Alternative

Emissions would continue to be generated by Base activities such as aircraft operations and other aircraft maintenance activities, as well as vehicle, boiler, generator, and fueling operations, and industrial processes. It is anticipated the emissions from these activities would continue at the levels generated under the baseline condition.

4.4.4 Cumulative Impacts

The Air Force proposes to conduct numerous other construction projects over the 4 years during which the proposed construction associated with the AT/FP project on Travis AFB would occur. When considering area, the largest of the other projects would be the construction of the 300 Parking Apron Improvement project. For analysis purposes, the emissions from this project were combined with the Proposed or Alternative Action maximum

annual emissions to represent the most conservative condition that would occur in any one year for cumulative condition impacts. The methodology used to calculate the emissions for the Proposed Action was used for the cumulative conditions. Table 4-4 lists the annual emissions and the annual percent of change when compared to the baseline for the Proposed Action cumulative condition.

Table 4-4 Air Pollutant Emissions for Cumulative Condition

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	SO _x (tpy)	NO _x (tpy)	PM ₁₀ (tpy)
AQCR CY02 Totals ^a	656,300	181,405	33,215	220,825	85,775
Proposed or Alternative Action	1.62	0.13	0.11	0.96	3.14
Other Actions	1.61	0.50	0.00	7.41	0.53
Total Annual Emissions ^b	3.23	0.63	0.11	8.37	3.67
Cumulative Emissions at Travis AFB as Percent of AQCR Emissions	0.00034%	0.00035%	0.0003%	0.0038%	0.0043%

a BAAQMD 2003

b Estimated emissions from Proposed Action (maximum 1-year emissions) and other action activities during the same year.

tpy tons per year

Note: VOC is not a criteria air pollutant; however, VOC is reported because, as an ozone precursor, it is a controlled pollutant.

Review of the data in Tables 4-4 indicates that the greatest increase in emissions from demolition and construction activities for the cumulative condition would be PM₁₀ (3.67 tons) under the Proposed or Alternative Action cumulative condition. The PM₁₀ emissions equate to 0.0043 percent of the PM₁₀ emissions within the AQCR. The emissions for cumulative conditions would be temporary and would cease after completion of the activity. Emissions for the cumulative condition fall below the 10 percent level that would be considered regionally significant by the USEPA if the region were nonattainment for any of the criteria pollutants as stated in 40 CFR 51, Subpart W, Section 852. However, the area is in attainment. Therefore, the air emissions from the construction activities associated with the Proposed Action and Alternative Action cumulative conditions would not be considered significant.

4.4.5 Mitigation

Potential criteria pollutant emissions associated with the Proposed or Alternative Action do not exceed significance criteria requirements. Therefore, no mitigative actions would be required.

4.5 BIOLOGICAL RESOURCES

An impact to biological resources would be considered significant if the action would impact a threatened or endangered species, substantially diminish habitat for a plant or animal species, substantially diminish a regionally or locally important plant or animal species, interfere substantially with wildlife movement or reproductive behavior, and/or result in a substantial infusion of exotic plants or animal species.

4.5.1 Proposed Action

Vegetation and Wildlife. Construction activities associated with the Proposed Action would occur within developed, maintained areas with extant, highly modified and disturbed landscape. The activities would not substantially change habitat for plant or animal species, nor would they diminish an important plant or animal species. Trees and shrubs would be retained to the greatest extent possible. There would be no impacts to vegetation outside the developed areas of the Base. Use of best management practices (*i.e.*, erosion control, and reestablishment of ground cover) during construction would minimize the potential for adverse effects to vegetation at and near the construction sites. Therefore, no significant adverse effects to vegetation or wildlife would be anticipated.

Threatened, Endangered, and Special Status Species. Proposed Action activities would not impact continued existence of the federal and state listed endangered and threatened species occurring on Travis AFB.

Wetlands. The Proposed Action at Travis AFB would not require construction of any facilities in wetlands. Construction activities at the Main Gate would be conducted to avoid discharge of materials into the drainage area south of Air Base Parkway. The proposed construction at the North Gate would be located in a developed area more than 500 feet from the North Gate Duck Pond (a riparian zone associated with Union Creek). With implementation of avoidance measures and best management practices, impacts to wetlands associated with North Gate Duck Pond would not be expected.

The Air Force would ensure that construction activities are managed to avoid any discharges into wetlands or drainageways west of the North Gate and in the vicinity of the Main or Forbes Gates. Construction activities at these gates would be conducted with protective measures to avoid any discharge of construction waste or runoff into any drainages or wetlands. Standard erosion and sedimentation control measures shall be implemented during construction work. With incorporation of best management practices, impacts to wetlands would not be considered significant.

Floodplains. The Proposed Action at Travis AFB would not require construction in any floodplain. Proposed improvements at the Forbes Gate would be managed to avoid work in the portion of the western branch of Union Creek that runs beneath Forbes Road. Construction activities at the North Gate would be managed to avoid any work in the floodplain associated with the eastern branch of Union Creek that flows into the North Gate Park.

4.5.2 Alternative Action

The Alternative Action to develop a commercial gate at the Main Gate would require construction activities similar in nature to the Proposed Action. Construction would occur at the Main Gate. Habitat loss at the Main Gate would be the same as described for the Proposed Action (Subchapter 4.4.1).

4.5.3 No Action Alternative

No construction or operational actions associated with the AT/FP project would be accomplished at Travis AFB with implementation of the No Action Alternative. However, facilities construction typical of that in previous years likely would occur as part of the overall facilities modernization plan for Travis AFB. The potential for adverse effects to biological resources on Travis AFB would be minimized through compliance with existing natural resources management plans.

4.5.4 Cumulative Impacts

The Air Force proposes to conduct various construction projects over the 4 years during which the proposed construction associated with the AT/FP project on Travis AFB would occur. Biological resources would continue to be managed in accordance with existing regulations and the INRMP for Travis AFB. With incorporation of best management practices, the Proposed Action would not result in any cumulative impacts that are considered significant.

4.5.5 Mitigation

No significant adverse biological effects would occur. Therefore, no mitigation measures would be required for biological resources.

4.6 CULTURAL RESOURCES

An undertaking is considered to have an effect on a historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the NRHP. An effect is considered adverse when it diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties would include, but would not be limited to:

- physical destruction, damage, or alteration of all or part of the property;
- isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- neglect of a property resulting in its deterioration or destruction; and
- transfer, lease, or sale of the property (36 CFR 800.9[b]).

Any ground-disturbing action in the area of an NRHP-eligible or potentially eligible archaeological site, or modification to such a site, can affect the integrity of that cultural resource, resulting in - alteration or destruction of those characteristics or qualities which make it significant and potentially eligible for inclusion in the NRHP. While archaeological sites or historic buildings or structures can be destroyed during a single event, more often it is the cumulative effect of recurrent disturbing actions that diminish the integrity of the cultural resource and its significant characteristics.

For this analysis, the ROI is synonymous with the area of potential effect, as defined by the NHPA. The ROI is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.

4.6.1 Proposed Action

Archaeological Resources. No NRHP-eligible archaeological resources are located within or adjacent to areas proposed for construction on Travis AFB. A former prehistoric site, CA-Sol-313, was destroyed during construction of the David Grant Medical Center. The Proposed Action would not result in any effects to archaeological resources on Travis AFB.

In the event previously undetected archaeological resources or human remains are discovered during project activities, the construction contractor or responsible individual would be required to stop construction activities in the affected area (and a reasonable buffer exclusionary area) and contact the 60 CES/CEV Cultural/Natural Resources Manager, who will take steps to minimize impacts to the resource. Procedures to follow must be in accordance with Section 5.5.1 (Inadvertent Discovery of Archaeological Remains) of the ICRMP for Travis AFB. Any unknown site or other cultural remains inadvertently discovered must be assumed to be potentially eligible for NRHP listing. The 60 CES/CEV Cultural/Natural Resources Manager would then notify the Installation Commander about the nature, location, and circumstances of the discovery. Where no human remains are involved, the 60 CES/CEV Cultural/Natural Resources Manager shall notify the National Park Service, SHPO, and Advisory Council on Historic Preservation in accordance with Section 5.5.1 of the ICRMP. In the event further investigation is required, any data recovery would be performed in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 Federal Register 44734-37) and take into account the Council's publication, *Treatment of Archaeological Properties*. This process applies to archaeological resources under all elements of the Proposed Action.

Historical Resources. No NRHP-eligible historical resources are located within the ROI for Travis AFB. The Proposed Action would not result in effects on historical resources.

Native American Concerns. The Proposed Action would not result in impacts to Native American concerns on Travis AFB.

4.6.2 Alternative Action

The impacts to cultural resources from the Alternative Action would be the same as that described for the Proposed Action.

4.6.3 No Action Alternative

No facilities actions associated with AT/FP requirements would be accomplished at Travis AFB as a result of the No Action Alternative. However, facilities construction typical of that in previous years likely would occur as part of the overall facilities modernization plan for

Travis AFB. Cultural resources would continue to be managed in accordance with existing regulations and the CRMP for Travis AFB.

4.6.4 Cumulative Impacts

The Air Force proposes to conduct a number of other construction projects over the four years during which the proposed construction associated with the AT/FP project on Travis AFB would occur. Cultural resources would continue to be managed in accordance with existing regulations and the CRMP for Travis AFB. With incorporation of best management practices, the Proposed Action would not result in any cumulative impacts to cultural resources that are considered significant. When combining the other actions with the Proposed Action, no significant cumulative adverse cultural resources effects, including visual, would be anticipated under the cumulative condition.

4.6.5 Mitigation

No significant archaeological and historical resources effects have been identified. Therefore, no mitigation measures would be required.

4.7 UTILITIES AND INFRASTRUCTURE

Impacts to solid waste management and transportation systems would be considered significant if the federal action substantially increased the demands on systems, resulting in the need for additional capacity or new facilities.

4.7.1 Proposed Action

Solid Waste Management. In considering the basis for evaluating the significance of impacts on solid waste, several items were considered. These items include evaluating the degree to which the Proposed Action waste generation could affect the existing solid waste management program and the capacity of the area landfill. Analysis of the impacts associated with the proposed demolition and construction activities is based on the following assumptions:

- The weight of concrete debris is 150 lb/ft³ (Merritt 1976);
- The weight of asphaltic concrete roadways is 130 lb/ft³ (AI 1983);
- Approximately 4 pounds of construction debris is generated for each square foot of floor area for new structures (Davis 1995);
- Approximately 92 pounds of demolition debris is generated for each square foot of floor area of demolished structures (USACE 1976);
- Approximately 96 pounds of demolition and construction debris are generated for each square foot of floor area of renovated structures;
- Approximately 1 pound of construction debris is generated for each square foot of new asphaltic concrete pavement;

The Proposed Action would result in no change to the number of personnel residing or working on Base. There would be no change in solid waste generated by Air Force active duty, reserve, and civilian personnel. Thus, deposition of residential solid waste would not change as a result of the Proposed Action, and the deposition in the landfill would continue at the same rate as the baseline condition.

Type IV solid waste would be generated from implementation of the Proposed Action. These wastes would consist of building debris and construction materials such as concrete, metals (*i.e.*, roofing, reinforcement bars, conduit, piping), fiberglass (roofing materials and insulation), cardboard, plastics (*i.e.*, piping, packaging material, shrink wrap), and lumber. It is estimated that 3,547 square feet of new structures would be constructed and 27,966 square feet would be demolished. Additionally, 255,819 square feet of new roadways would be constructed. Based on these data and the assumptions listed above, it is estimated that 1,421 tons of demolition and construction debris would be generated by the Proposed Action over the four-year construction period.

It is assumed the debris would be disposed in the Potrero Hill Landfill. Disposal of demolition, construction, and renovation debris from the Proposed Action would increase the disposal rate at the Potrero Hill Landfill by approximately 1.5 tons per day over the 48-month period. This rate is conservative and reflects that all waste would be disposed in a landfill. It is assumed the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. However, the exact amount of debris cannot be estimated at this time and this analysis assessed the most conservative condition.

As mentioned in Subchapter 3.7, the landfill has a remaining projected life expectancy of 54 years, with an average disposal rate of 2,192 tons per day. Based on an average disposal of 260 days per year (*i.e.*, 5 days per week) for 54 years, there would be 14,040 days when construction and demolition debris would be disposed in the landfill. Thus, the total remaining capacity of the landfill is estimated at 30,776,000 tons. The projected disposal from the Proposed Action (1,421 tons) equates to less than 0.005 percent of the total remaining capacity. Disposal of construction and demolition debris from the Proposed Action would not significantly reduce the life expectancy of the landfill.

Transportation Systems. Impacts would include a temporary increase in construction-related traffic during the construction activities. It is anticipated construction-related traffic would be localized to the specific construction project area as well as the route between the project site and the Base gate. The construction-related traffic would be temporary, lasting as long as the project activity in that area. The Proposed Action would result in improvements to peak hour traffic after the construction activities are complete due to the improved flow onto the Base. The Proposed Action would result in no change to weekday on-Base roadway volumes. It is anticipated that vehicular traffic at the Base gates would be acceptable, with no substantial change in volumes from baseline conditions. No substantial change in traffic congestion would be expected as a result of the Proposed Action, and the Proposed Action would only lessen and not worsen congestion.

4.7.2 Alternative Action

The impacts to solid waste and transportation systems from the Alternative Action would be the same as that described for the Proposed Action.

4.7.3 No Action Alternative

No facilities or actions associated with AT/FP activities would be accomplished at Travis AFB as a result of the No Action Alternative. Although there could be minor variations in the number of personnel authorizations at the Base, no large-scale changes would occur. For these reasons, traffic and solid waste generation would continue at the levels experienced under the current conditions. The volume of vehicular traffic would be expected to remain at current levels.

4.7.4 Cumulative Impacts

Solid Waste Management. It is estimated that 8,557 tons of debris would be generated by the other actions planned for Travis AFB. Disposal of demolition, construction, and renovation debris from the other actions would increase the disposal rate at the Potrero Hill Landfill by an average 9.95 tons per day over a four-year period. It is assumed the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. However, the exact amount of debris cannot be estimated at this time and this analysis assessed the most conservative condition.

The landfill has a remaining projected life expectancy of 54 years, with an average disposal rate of 2,192 tons per day. Based on an average disposal of 260 days per year (*i.e.*, 5 days per week) for 54 years, there would be 14,040 days when construction and demolition debris would be disposed in the landfill. Thus, the total remaining capacity of the landfill is estimated at 30,776,000 tons. The projected disposal from the Proposed Action cumulative condition is estimated to be 10,245 tons, which equates to 0.03 percent of the total remaining capacity. Disposal of construction and demolition debris from the Proposed Action and other actions would not significantly reduce the life expectancy of the landfill.

Transportation Systems. Construction projects associated with the other actions would increase project-related traffic as described for the Proposed Action. Since some of the other actions are in the same area as the Proposed Action construction activities, there could be a slight cumulative increase in traffic. As with the Proposed Action, the construction-related traffic would be temporary, lasting as long as the project activity in that area. When combining the net increase in personnel from the other actions (206 persons) with no change in personnel under the Proposed Action, there would be a net increase in personnel at Travis AFB. This would result in an increase of less than one percent in weekday on-Base roadway volumes. With implementation of the Proposed Action, it is anticipated that vehicular traffic at the Base gates would be improved and acceptable, with sufficient capacity to accommodate the cumulative condition. A reduction in traffic congestion would be expected as a result of the cumulative condition.

4.7.5 Mitigation

No significant solid waste or transportation impacts would be anticipated. Therefore, no mitigation would be required.

4.8 ENVIRONMENTAL MANAGEMENT

Impacts to the installation restoration program would be considered significant if the federal action disturbed (or created) contaminated sites resulting in adverse effects to human health or the environment.

4.8.1 Proposed Action

No construction activity would occur on or adjacent to an ERP site. Therefore, no ERP impacts would be anticipated. In the event of a spill of any amount or type of hazardous material or waste to include petroleum product during demolition or construction, the contractor would take immediate action to contain and clean up the spill. Contractor spill clean up personnel would be trained and certified to perform spill clean up. The contractor would be responsible for the proper characterization and disposal of any waste and clean up materials generated. All waste and associated clean up material would be removed from the Base and transported and/or stored in accordance with regulations until final disposal. All details concerning the spill would be provided to the government. The contractor is responsible for restoring a spill site to the condition prior to the spill or to an improved condition. Fueling and lubrication of equipment would be conducted in a manner that affords maximum protection against spills. Secondary containment is required around temporary fuel oil or petroleum storage tanks larger than 660 gallons and is recommended for smaller tanks.

4.8.2 Alternative Action

The Alternative Action to expand the parking lot at the Main Gate would result in the same impacts as the Proposed Action.

4.8.3 No Action Alternative

No facilities actions associated with AT/FP requirements would be accomplished at Travis AFB as a result of the No Action Alternative. Impacts to ERP sites would not be anticipated. However, facilities construction typical of that in previous years likely would occur as part of the overall facilities modernization plan for Travis AFB. Management of ERP site work would continue in accordance with applicable environmental plans and policies for Travis AFB.

4.8.4 Cumulative Impacts

None of the other planned projects on Travis AFB are located in the immediate area of the Proposed Action project sites. Other planned projects would be required to comply with regulatory requirements and best management practices for ERP site avoidance as described for

the Proposed Action. This would minimize the potential for cumulative impacts. When completed, activities at the other facilities would be managed in accordance with applicable environmental plans and policies. No cumulative ERP impacts would be anticipated.

4.8.5 Mitigation

Impacts to environmental management and known ERP sites would not be anticipated. No mitigation measures would be required.

4.9 HAZARDOUS MATERIALS AND WASTE

Impacts to hazardous materials and waste management would be considered significant if the federal action resulted in noncompliance with applicable federal and Washington environmental quality regulations or caused waste generation that could not be accommodated by current Travis AFB waste management capacities.

4.9.1 Proposed Action

Hazardous Materials. Products containing hazardous materials would be procured and used during construction activities as well as operation of the facility. Construction contractors would be required to use and store hazardous materials in accordance with all federal, state, and local regulations. It is not anticipated that any hazardous materials not currently used for gate operation would be needed for operation of the new gates. The existing hazardous materials handling processes and procedures could accommodate the hazardous materials associated with operations at the new gates.

Hazardous Wastes. Hazardous wastes could be generated during the construction activities. It is anticipated that the quantity of hazardous wastes generated during the construction period would be negligible. The construction contractor would maintain records of all waste determinations, including appropriate results of analysis performed, substances and sample locations, date and time of collection, and other pertinent data as required by 40 CFR Part 280, Section 74 and 40 CFR, Part 262, Subpart D.

In the event of a spill of any amount or type of hazardous material or waste (petroleum products included), the construction contractor would take immediate action to contain and clean up the spill. Contractor spill clean up personnel would be trained and certified to perform spill clean up. The contractor would be responsible for proper characterization and disposal of any waste and clean up materials generated. All waste and associated clean up material would be removed from the project site and transported and/or stored in accordance with regulations until final disposal.

The potential for hazardous waste generation from gate activity would continue to be negligible. Any hazardous waste generated would be handled in accordance with federal, state, and local laws and regulations, including RCRA requirements for waste management and Department of Transportation requirements for waste transport.

4.9.2 Alternative Action

The hazardous materials and wastes discussion and analyses for the Proposed Action apply to the Alternative Action.

4.9.3 No Action Alternative

No facilities actions associated with AT/FP gate improvements would be accomplished at Travis AFB under the No Action Alternative. It is anticipated that the volumes of hazardous materials purchased and hazardous wastes generated would continue at the current levels. No significant impacts occur from the volumes of materials and wastes purchased and generated and the existing management procedures would continue to be used.

4.9.4 Mitigation

No significant impacts would be anticipated. Therefore, no mitigation would be required.

4.9.5 Cumulative Impacts

The discussion and analyses for the Proposed Action apply to the other projects and no cumulative significant hazardous materials and wastes impacts would be anticipated.

4.10 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts would result from implementation of the Proposed Action.

4.10.1 Air Quality

The emission of air pollutants associated with construction at the Base gates is an unavoidable condition, but is not considered significant and a Clean Air Act General Conformity Determination would not be required.

4.10.2 Noise

Noise resulting from temporary construction activities at the Base gates is an unavoidable condition. Sleep disturbance, annoyance, and speech interference may occur for the Proposed or Alternative Action. However, hearing impairment is not expected. Noise would not be considered a significant impact.

4.10.3 Environmental Management

The loss of aggregate, which would become inaccessible, would occur as a result of the construction activities. However, due to the potential for reuse of this material on site, the relatively small portion of the resource area affected and the low economic value of aggregate in the areas, this condition would not be considered significant. Earthquake-related hazards, including ground shaking and high ground accelerations that may cause damage to new facilities would be an unavoidable condition.

4.10.4 Biological Resources

Site grading associated with construction projects would remove vegetation and associated small animal life now occupying or utilizing the affected habitat. The affected sites are in the areas of the bases that were previously disturbed and would not presently provide significant habitat for many species. Plants and wildlife would be extirpated from the site, decreasing site floral and faunal diversity. Wetlands near the North Gate would be avoided during design and construction of facilities at this location. Although unavoidable, this adverse condition would not be considered significant with incorporation of avoidance measures and best management practices.

4.10.5 Safety

The potential for exposure to harmful substances in the event of an explosion at a Base gate is an unavoidable, although unlikely, condition associated with the Proposed Action. However, the potential for these unavoidable situations would not significantly increase over baseline conditions, and therefore would not be considered significant.

4.10.6 Infrastructure and Utilities

The use of nonrenewable resources is an unavoidable occurrence, although not considered significant. The Proposed and Alternative Action would require use of fossil fuels, a nonrenewable natural resource. Energy supplies, although relatively small, would be committed to the Proposed Action or Alternative Action.

4.11 RELATIONSHIP BETWEEN SHORT-TERM USES AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Neither the Proposed Action nor the Alternative Action would result in intensification of land use in the area surrounding the Base. Development of the Proposed Action, Alternative Action, or No Action Alternative would not represent a significant loss of open space. The sites are designated for aviation uses, and were not planned for use as open space. Therefore, it is not anticipated that the Proposed Action, Alternative Action, or No Action Alternative would result in any cumulative land use or aesthetic impacts. Long-term productivity of the sites would be increased by development of the Proposed Action or the Alternative Action.

4.12 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The irreversible environmental changes that would result from implementation of the Proposed Action, Alternative Action, or No Action Alternative involve consumption of material resources, energy resources, land, biological habitat, and human resources. The use of these resources is considered to be permanent.

4.12.1 Material Resources

Building materials (for construction of facilities), concrete and asphalt (for facilities and roads), and various material supplies (for infrastructure improvements) would be used for the Proposed or Alternative Action. Most of these materials are not in short supply, and are readily available from suppliers in the region. Use of these materials for the Proposed Action would not limit other unrelated construction activities.

4.12.2 Energy Resources

Energy resources such as petroleum-based products (such as gasoline and diesel), natural gas, and electricity would be used for the Proposed or Alternative Actions and would be irretrievably lost. Gasoline and diesel would be used for operation of construction vehicles. Gasoline would be used for vehicle operation. Natural gas and electricity would be used to operate facilities. Consumption of these energy resources would not place a significant demand on their supply systems or within the region.

4.12.3 Land

Implementation of either the Proposed or Alternative Actions would result in construction of new facilities on Travis AFB. This land would be lost to other uses during the operational life of the improved gates. The loss of open space is not considered irreversible.

4.12.4 Biological Habitat

The Proposed Action or Alternative Action would result in the irreversible destruction or loss of the vegetation and wildlife habitat on proposed construction sites. Neither action would remove a significant amount of open space or undeveloped land currently functioning as biological habitat.

4.12.5 Human Resources

The use of human resources for construction and operation is considered an irretrievable loss only in that it would preclude the affected personnel from engaging in other work activities. However, the use of human resources for either the Proposed Action or Alternative Action represents employment opportunities, and is considered beneficial.

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**CHAPTER 5
LIST OF PREPARERS**

Name	Degree	Resource	Years of Experience
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Gaddi, Elvira	B.S., Chemical Engineering M.S., Chemical Engineering	Environmental Compliance	22
Schnapp, Angela	B.S. Nuclear Engineering M.S. Environmental Engineering	Environmental Engineering	9
Wallin, John	B.A., Biology M.A., Management	Project Manager	32
Wooten, R.C., Ph.D.	Ph.D., Ecology and Biology	Technical Manager	34

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CHAPTER 6 **PERSONS AND AGENCIES CONSULTED**

The following persons and agencies consulted during preparation of this EA.

Brooks Air Force Base, Texas, Headquarters Air Force Center for Environmental Excellence

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**APPENDIX A
AIR FORCE FORM 813**

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REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS: 03-0468

INSTRUCTIONS Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).

SECTION I - PROONENT INFORMATION

1. TO (Environmental Planning Function) 60 CES/CEV	2. FROM (Proponent organization and functional address symbol) 60 SFS/SFO	2a. TELEPHONE NO. 837-2800
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3. TITLE OF PROPOSED ACTION

Anti-Terrorism/Force Protection Activities at Travis AFB, California

4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date)

The proposed action is needed to improve gate security, personnel safety and reduce traffic congestion while maintaining access control requirements in support of force protection and security at Travis AFB.

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action.)

The Proposed Action would modify base perimeter and entry control facilities to meet force protection requirements for visitor control, vehicle inspection, security/overwatch provisions. The Proposed Action would include traffic flow improvements at each gate (roadway improvements, signing, lighting and speed control), operational modifications and associated upgrades (gate security, vehicle processing and vehicle arrest systems).

6. PROONENT APPROVAL (Name & Grade) SPRATLIN, JOHN C. Lt, USAF	6a. SIGNATURE <i>John Spratlin</i>	6b. DATE 15 Aug 03
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SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effect.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)		+	0	-	U
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7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)					X
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8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)					X
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9. WATER RESOURCES (Quality, quantity, source, etc.)					X
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10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.)					X
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11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)					X
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12. BIOLOGICAL RESOURCES (Wetlands/floodplains, flora, fauna, etc.)					X
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13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)					X
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14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)					X
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15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)					X
--	--	--	--	--	---

16. OTHER (Potential Impacts not addressed above.)					X
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SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17. <input type="checkbox"/> PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____; OR <input checked="" type="checkbox"/> PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.				
---	--	--	--	--

18. REMARKS

- 7. Action would not result in changes to land use or aircraft operations on the base. Construction-related noise will be evaluated.
- 10. Action would not have potential for chemical exposure, explosives safety quantity-distance issues.
- 11. Action would not result in any change in the use, storage or generation of hazardous materials or hazardous waste.
- 15. Action would not result in any changes to employment, population and school, nor would it result in any fiscal impacts.
- 16. Action would not have potential impacts on environmental justice, utilities/infrastructure, or public services. Transportation and aesthetics will be evaluated.
- 17. An environmental assessment (EA) is being prepared to evaluate the impacts of this action on the Travis AFB area.

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name & Grade) Troy Martinson, P.E., Chief, Environmental Flight	19a. SIGNATURE 	19b. DATE 8/15/03
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AF FORM 813 CONTINUATION SHEET

4. PURPOSE AND NEED FOR ACTION

The purpose of the action is to improve gate security, ensure personnel safety and reduce traffic congestion, while maintaining access control at Travis AFB. The Air Force is proposing to construct physical improvements to process visitors and commercial vehicles, as well as implement operational modifications at entry control facilities (ECF) on Travis AFB. The action is needed to:

- Ensure the protection and security of Department of Defense (DoD) forces and assets against acts of terrorism;
- Ensure the safety of security forces and motorists;
- Improve the base entry gate capacity and traffic flow; and,
- Improve the aesthetic quality of the base perimeter and ECFs on the Base.

5. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Proposed Action. The Air Force is proposing to implement physical improvements to each of the ECFs at Travis AFB in accordance with the recommendations identified the 2002 Traffic Engineering Study as well as FHWA, AASHTO, AMC and Travis AFB requirements. The Proposed Action would result in construction of upgrades and new security features at the gates as well as operational changes to Base access. The Proposed Action would result in improvements to the Main, North, Hospital, South and Forbes Gates. A new Visitor Center and expanded parking lot would be constructed at the Main Gate.

Alternative Action. As an alternative to the Proposed Action, the Air Force would construct an expanded parking lot for the Visitor Center at the Main Gate (instead of a new Visitor Center at the Main Gate). One additional inbound lane would be constructed. The gate would operate with three inbound lanes with tandem (2) ID checker positions. An off-street POV inspection area would be constructed with a two-bay canopy. Construction at other gates and operation of the gates would be the same as the Proposed Action.

No Action Alternative. Travis AFB would continue to operate ECFs under existing conditions. The number of active duty military, Reserve Associate military, government civilian, and contractor personnel at the Base would remain at the level assessed in the 2003 Draft EA for West Coast Basing of C-17 Aircraft. No ECF or other improvements to the Base gates would occur.